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1. THE PROBLEM OF ILL-HEALTH.

While fully recognising the great additions that are being made to medical knowledge in recent years, and while appreciating the benefits which the application of the knowledge has conferred on the practice of medicine, yet we must not shut our eyes to fields which are practically unrecognised, but which are essential to the progress of medicine. The ardent investigator should ever be more ready to analyse his failures than to contemplate his success, and if we take a wide outlook on medicine, we shall have little difficulty in detecting failures. If a survey be taken of modern medicine, the remarkable fact comes clearly out that, notwithstanding the widespread interest in medical research, the most obvious of all problems whose solution is necessary for the rational practice of medicine remains practically untouched.

Every patient who consults a doctor does so because he feels ill, yet if we ask what is ill-health, or what is the nature of the phenomena of ill-health, we shall ask in vain, for nowhere is there to be found an understanding of the nature of the simplest phenomenon of this kind. In a vague sort of way attempts have been made to understand the nature of ill-health and of the changes that lead to death. At one time pathology was expected to give this kind of knowledge, but it has failed. The reason for this failure will be grasped when it is realised that the phenomena of ill-health and death are due to the disturbance and cessation of active living processes, and that neither the post-mortem examination nor the microscopic examination of damaged organs can reveal these processes. It was expected that bacteriology would supply this kind of knowledge, but while it may reveal an agent which provokes ill-health, it throws no light upon how that agent produces ill-health. Methods of investigation are being borrowed from other sciences, but although chemical analyses, the X rays, the electro-cardiograph, and other devices may be adapted for clinical investigation, and although they have proved of value, they fall short of expectation for the simple reason that while they may reveal the result of disease they do not reveal the process which is concerned in its production.

Common Diseases.

The hampering effect of the absence of this kind of knowledge upon medical progress and practice is seen in many fields. Crusades and campaigns are being organised against diseases whose effect upon the body is not understood beyond the fact that ill-health and death result. Manifestly, if we are to combat a danger we must know the nature of the danger, and while we know that tuberculosis, cancer, and heart disease produce ill-health and death, we do not know how they do it. When an enterprise is undertaken which requires a certain kind of knowledge, and it is assumed that this knowledge exists when it does not exist, it does not require the gift of prophecy to foretell the end of such an enterprise. It is for this reason that the path of medicine is strewn with enterprises that have failed.

Articles and speeches, depicting the progress of medicine in glowing terms are becoming stereotyped with constant references to certain successes, particularly in tropical diseases. If more attention were directed to the common diseases that afflict the people in this country a better perspective of the progress of medicine would be obtained. If the present state of knowledge and practice regarding these diseases be compared with the state when I entered practice 45 years ago there is some difficulty in recognising where progress has been made. Occasionally new methods of diagnosis may bring to light signs that before could not be detected. We may find a new remedy used to relieve distress, and many new surgical operations performed which were not done then, but if we look at the mass of people in ill-health, only a minute percentage have gained benefit. The so-called minor ailments, some of which are the beginnings of serious ill-health, the numerous digestive troubles which do so much to impair health, are just as common and as little understood now as then, and we are just as helpless in face of the grave acute illnesses.

Classification of Disease.

A good conception of the lack of progress can be gained from the perusal of the index of diseases which numerous learned bodies issue from time to time. The study of such books reveals the total absence of any system of classification of the slightest value. Time and again attempts have been made to classify diseases on some logical basis, and all have failed, simply because a knowledge of disease adequate for the purpose does not exist. We sometimes find the "cause" used for a logical classification, but as in the vast majority of cases of ill-health the cause is unknown, the basis has to be mainly guessing—that is to say, the logical classification has to start with what is bound often to be a false premise—and we know where that leads. Again, we find morbid anatomy used as a basis for classification, but here again failure is bound to result, for the diseased organ is the result of those processes which caused ill-health and death, and we know so little of these that it is not possible to recognise the connexion between them and the diseased organ.

All attempts to classify common ailments or diseases have resulted in a nomenclature where signs and symptoms, morbid structures, and fanciful diagnoses, and even physiological manifestations, are mixed together in hopeless confusion. This, again, is because the nature of ill-health is not understood.

* The material for these articles was obtained from observations in which every member of the Institute participated. Part of the expenses incurred was contributed by the Medical Research Council and the Carnegie Trust.

Nature of Ill-health.

An essential problem in the practice of medicine in dealing with a sick person is to know what it is that makes him ill and why he dies. To say that he has a pneumonia, or that he is infected by the pneumococcus microbe is quite true, but that is not enough. The microbe may be the agent and the inflamed lung one of the results, but they do not tell us why he is ill. The doctor is called in because he is supposed to have the knowledge and to be able to use remedies to combat the illness; this he cannot do, for he does not know the nature of the illness. One doctor may fancy the lung needs treatment, and applies a poultice to the chest; another that the heart is "failing" and gives remedies for the heart; and a third that the blood is not sufficiently aerated, and prescribes oxygen; while another attacks the ill-health with a vaccine, and so forth—no one really knowing what to treat. A simpler example of this defective knowledge is illustrated in cases of poisoning. No pharmacologist or toxicologist can tell us the action of a poison like arsenic in causing ill-health and death.

Pain.

This defect in our knowledge will be even more fully realised if we consider how little we know of the most clamant and universal, and if we understood it, probably the most instructive of all the phenomena of ill-health—pain. We can reason that pain originates from impulses sent out by the cells of an organ or tissue whose normal condition is disturbed, that these impulses are taken up by certain nerves, and transmitted to the central nervous system, where they produce the sensation of pain, and the sensorium refers the pain to some part of the body. But if we ask what tissues are capable of producing these impulses, what nerves receive these impulses, what morbid states underly their production, and how comes it that the pain is referred to places sometimes remote from the organ or tissue whose disturbance gives rise to the impulse—such questions cannot be answered, except by guesses. What is true of pain is practically true of every other symptom, whether it is a sensation experienced by the patient or a sign perceived by the unaided sense of the experienced observer or detected by the aid of some mechanical device.

Records.

A great deal of time and labour is spent on getting records, and an enormous mass has been accumulated. Everyone recognises that they should be of inestimable value, but somehow or other the good results are never commensurate either with expectations or with the labour spent. If one asks a physician or surgeon what use he makes of the records of his predecessors, who it may be, for a quarter of a century, had been piling them up, he will reply that nobody ever looks at them! This fact has been recognised, and strenuous attempts are being made to remedy this state of affairs. But there is little prospect of success so long as we remain ignorant of the phenomena of ill-health. The most favoured method to-day is to have each patient examined by a great many specialists. Each specialist may find something wrong, and all their findings are carefully recorded. But such records are of little help, as they do not tell us the outcome of the complaint. This is recognised in some quarters, and the patients are to be "followed up." But what is it that should be watched in the following up, and which of the specialists is to do it? The object is to note the modification in the symptoms with the progress of the disease, but in the present state of knowledge of the nature of symptoms, only a very imperfect or useless record can be kept.

Again, such records start long after the onset of the complaint, and little understanding of how the present state was reached can be found. This has been recognised, and hospital physicians are spending their time in the out-patient department. But, as they have been educated only to recognise the "physical signs" of disease, which are often produced when the disease has done damage to the organ, there is little prospect at present of success, seeing that in the early stages of disease there are often no physical signs. Before there is any prospect of success there must be a far better understanding of those symptoms by which ill-health is recognised.

The significance of this will be understood if we keep clearly in our mind the main objects of records which are, to record the symptoms which will enable a diagnosis and a prognosis to be made. The symptoms for these purposes are not necessarily the same. When a patient is ill he is not so much concerned with the name of his complaint, as whether he is to get well or not. The symptoms by which we recognise scarlet or typhoid fever are not those by which we can give a prognosis. Moreover, the knowledge of whether he is to do well or ill forms the basis of a rational treatment. To put the matter in another way, we may find in a patient some definite sign as a heart murmur, pleuritic friction, spitting of blood, and it is necessary to assess their value—to find out what relation they have to the patient's future health. To give statistics that a certain percentage of people with murmurs die or that a certain percentage of consumptives have suffered from pleurisy or hæmoptysis may be true, but they do not tell us what is to happen to any particular individual. When a person is in ill-health there is always present a number of symptoms, some of which afford the means of diagnosis, but it is the nature and kind of the symptom which determine the prognosis. The aphorism that no grave prognosis in heart affections should be based upon the presence of only one sign, holds good for practically all other organs. Records ought to give this kind of information, but they will never do it while symptoms are neglected, and until this is remedied the keeping of records will continue to be of little value.

Treatment.

A further evidence of the hampering effect of the lack of knowledge of ill-health is seen in treatment. If treatment is ever to become rational and intelligent, it is necessary to know the condition we want to treat. As the condition is invariably made manifest by certain signs or symptoms—that is, by the phenomena of ill-health—we must know what these are and how they are produced, but while we are ignorant of their nature our treatment is bound to be haphazard and empiric. It is necessary to know how our remedies act. While we may recognise that they do act, it is seldom that we have any clear idea of how they act. We know castor oil may relieve constipation, but we know as little about the manner of its action as we do of the nature of constipation. In recent years a portentous list of new remedies has been introduced under imposing titles, as vaccine therapy, serum therapy, chemotherapy, psychotherapy, vitamin therapy, endocrine therapy, substitution therapy, &c. While each is claimed to give good results, no person has a real knowledge of the action of the various remedies, and we are therefore driven to speculation for an explanation. Hence the principles of modern therapy are the same as those which have been in use from time immemorial—the giving of a remedy whose action we do not understand for a condition of whose nature we are ignorant. If this is grasped it will be seen that there is no prospect of a truly scientific principle being evolved until we understand the nature of the phenomena which we wish to treat.

We might present the subject in another way. We frequently meet with people in ill-health who have had all their teeth removed, because the doctor thought that in some way the teeth caused the ill-health, but who have gained no benefit from the removal. It is known that adenoids may result in ill-health in some people, but in the vast majority of people they have no ill-effect—yet the fashion of to-day is to remove them. Appendicitis causes ill-health and death in some people, and great numbers of people have their appendixes removed, with no benefit to their health. Surgical literature will be searched in vain for a knowledge of the nature of the symptoms of appen-

dicitis, or the manner in which they are produced, while no description is given of those phenomena which would guide to understanding the danger, or absence of danger. Large numbers of perfectly healthy people are rejected for life insurance, and for entrance into the Services, have their lives restricted, and are subjected to various forms of treatment, because some sign as a murmur or an irregularity of the heart is detected. Modern medicine is developing along new lines, in which numbers of specialists are combining to make a more thorough examination of each patient. That each specialist may frequently find symptoms belonging to his special department is to be expected, seeing that in a sick man every organ may be disturbed. But if each or all of them is asked what is the nature of the ill-health which is provoked by the disturbance, no clear information can be obtained. That does not mean that each specialist may not do good by his treatment, or that such a combination may not be successful, but the point is that there is not that knowledge which enables the specialist to understand the relation of the disturbance which he detects with ill-health, and in consequence of the absence of this knowledge he is forced to treat patients whose sufferings cannot be relieved on the same lines as those who can be relieved.

Specialism.

Did space permit it might be profitable to discuss the reason for the neglect of such an important field of knowledge—it suffices here to point out that it is in a great measure the outcome of specialism. Medicine has become so large that it is necessary for men to limit themselves to special fields. On this there follows the danger inseparable from specialism in all spheres, the inability to see the whole field, with the result that each investigator is so engrossed in his own narrow sphere that he does not recognise that other fields as important, or even more important than his own, are being neglected. A man with a limited experience is likely to be a man with a narrow outlook. It is worth while to note that with few exceptions (as specialists in venereal diseases) specialists have no opportunity for seeing patients in the early stages of the disease in which they specialise, and as a consequence the early stages of the vast majority of diseases cannot be recognised.

Many examples of the evil effects of specialism in the practice of medicine could be cited, and the following may be taken as an example. A problem which is ever cropping up in general practice is how to deal with patients with affections of the heart who become pregnant. A perusal of recent obstetric books shows that the writers have so imperfect a knowledge of this subject that their opinions are of little value. The heart specialist has never had the opportunity of studying the effect of pregnancy in either the normal or diseased heart. The absence of this kind of knowledge often has calamitous results.

The Laws Governing the Production of Phenomena.

The living body is composed of organs which are continually being exposed to impulses from without and from within, to which the organs react. The agents which are capable of originating such impulses and the reactions they produce are infinite in number. As a great deal of medical investigation is concerned with these reactions, there is no limit to the number of methods that may be devised to produce them or to detect them. So long as research is content with the mere accumulating of new facts of this kind little progress can be expected, though occasionally out of the great mass some facts of value may be discovered, and such discoveries are supposed to justify these procedures.

Looking at the matter in this light, the prospects of achieving the great aims of medicine are not hopeful, and the question arises: Is there not a better way? To find an answer it is worth while to consider how other subjects dealing with natural phenomena have made progress. Such subjects as chemistry, physics, botany are making great strides, and if we inquire into the reason it will be found that in their early history they were in the state that medicine is in at present, in that a great mass of detail was accumulated, but so confused that it was not possible to understand its significance. In course of time the need for a classification based upon rational grounds was recognised, and in each case this was found in the discovery of certain "laws" which enabled the mass of details to be classified according to their affinity in nature.

The phenomena produced in the living body in health and disease are natural phenomena, and are thus subject to definite laws. There is no prospect of understanding the phenomena which research is revealing every day until the mass of details is classified according to their affinity in nature, and this cannot be done until the laws that underlie the production of these phenomena are discovered.

The subjects just mentioned were not really entitled to be considered as sciences until the laws which governed the production of their phenomena were recognised. After that the subjects became not only easier of comprehension, but a guide was given which has led on to continuous progress. The want of knowledge of such laws is one reason for medicine's unprogressive position, and there is little prospect of material progress until they are discovered. Such is the conception which influences our work in St. Andrews. No one recognises the difficulties more than we do, and we put forward here some of our attempts knowing them to be—like all first steps—halting and uncertain.

2. THE NEW OUTLOOK.

The recognition that there is an urgent need for a new outlook in medicine is not the result of a superficial view or of a hasty survey. It is 44 years since I entered upon the practice of medicine as a general practitioner. After a few years it gradually dawned upon me that I was profoundly ignorant of the nature of the complaints for which I was consulted. If a patient had a pain I might be able to give relief, but when I asked myself how was the pain produced and how my remedy acted, I had to admit I did not know. When I detected in a patient a murmur in the heart, or an irregularity in its action, I looked upon these as signs of serious significance and proceeded to treat them according to the fashion of the day. But when I asked myself in what way they indicated danger I could not tell. The same blank ignorance faced me when I looked closely into nearly every form of complaint—whether trivial or serious. At first I thought my ignorance was peculiar to myself, but I soon found that neither the consultants to whom I brought my patients, nor the books I read, could give me the kind of knowledge I wanted.

I therefore resolved 40 years ago to improve my own knowledge, and for that purpose I set myself two objects—(1) to find out the nature and mechanism of individual symptoms, and (2) to find the bearing the cause of the symptom had on the patient's health in the present and in the future. From that time onward I have steadily pursued this inquiry. Needless to say, progress has been slow and difficult. One great obstacle was my profound ignorance of the manner in which the functions of the body were carried on. In striving to remove this ignorance, I discovered that the knowledge essential to the attainment of my object in many instances did not exist, and I had to devise measures to get this knowledge. Many were the failures, but gradually a measure of success was achieved. I kept reviewing the steps I had taken, and studied the reasons of success to find the reason for the failures, till I finally was able to understand the reason for the slow progress of medicine in dealing with the ill-health common among the people, and recognised a great field of investigation which had been neglected, but which is absolutely essential for the progress of medicine and its intelligent practice.

My experiences led me to see a possible way in which this field should be explored, and four years

ago the St. Andrews Institute was started with the definite object of studying the nature of ill-health. In the first instance it was incumbent that this inquiry should be in the hands of those who had the opportunity. As the main object was to study the life-history of disease, it was necessary that the investigators should watch the disease from its onset to its finish. It was necessary, therefore, to study the history of ill-health from its onset till its termination. For this purpose it was necessary to understand the phenomena which constituted ill-health. Not only must the investigator have suitable opportunities, but he must be trained to know what to observe. As ill-health is made known only by the sensations of the patient or the detection of signs by the doctor, it was necessary to comprehend the nature of symptoms. I had long ago found that the knowledge of symptoms was so defective that there was no hope of any success till it became far fuller.

Having thus clearly recognised the need of research and envisaged our object, it was necessary to organise a method that would enable the research to be pursued in a systematic manner. The opportunities to which reference has been made of studying disease from its onset to its termination were afforded only to the general practitioner, and it was evident he must take the principal part in the investigation. Many people may have opportunities for seeing ill-health in different stages, but these avail little unless a far better knowledge of the phenomena of ill-health is obtained than at present exists. It was recognised that to obtain this knowledge a prolonged investigation would have to be made into the nature of symptoms, and for this purpose the opportunities of the general practitioner were not enough. To help in this work the professors of anatomy and physiology of the St. Andrews University, a bacteriologist, a chemist, and an expert radiologist are associated with the general practitioners. In order that we might pursue our work systematically we discussed our object and recognised that the highest aim of medicine was to prevent disease. To prevent disease it was necessary to know the circumstances that caused or favoured its onset, and to know the course it pursued from the onset to its termination.

Realising this as our object we first had to get a clear conception of what we meant by ill-health or disease.

Ill-health is commonly spoken of as "disease." We wanted a clear conception of what was meant by disease, and for our purpose we defined ill-health or disease as *the reaction of the body to a noxious agent.* The reactions of the body were what is usually understood as the symptoms of disease, or the phenomena of ill-health. The noxious agent might be, and often is, a microbe. As the agent is rarely discoverable, and as disease or ill-health is only recognised by the presence of symptoms, we found it necessary to begin our work with the study of symptoms. We found that already there had been accumulated a great mass of symptoms, and to add to that mass by discovering new symptoms would not lead to progress but the reverse. A little consideration revealed that when a man falls ill every organ may be disturbed, so that there is no limit to the number of symptoms a sick man may develop, and the search for new symptoms and the invention of new devices for that purpose and the introduction of methods from other sciences would but add to that great mass of chaotic detail which at present effectively obscures the path of progress.

The first step lay in an endeavour to reduce the mass of symptoms to order and to classify them on some definite principle, such as their affinity in nature. As all phenomena in nature are subject to definite laws, we recognised that symptoms are natural phenomena, and their production must be subject to definite laws, and we set out to find them. Symptoms, apart from those due to structural changes, were found to be due to an increased or decreased action of some organ, that is to say, to a modification of normal activity. The activity of an organ depends on two parts, one consisting of cells with a specific function and another of cells that regulate the activity of the organ. The former consists of those cells whose action gives rise to the special function of the organ, as the contraction of muscle cells, the secretion of secretory cells, the sensations produced by the cells of the sensorium (brain). The activity of these cells are regulated by nerves or other structures with the same function as nerves. By the action of these regulating nerves the organ functions according to the requirements of the body. The variation of cell activity due to these requirements, as well as the variations which result in symptoms, are dependent on these regulating nerves to a great extent. These nerves are brought into action in a particular way. The organs of the body are continually subject to a stream of impulses which enter from without (through the skin and special senses) or are produced in the body by the activity of the organs themselves. These impulses, wherever they arise, are conveyed by the nerves to the different organs and modify their functional activity.

Our inquiry in this way led us to recognise that a great many symptoms, and especially those that indicated ill-health, were due to disturbance of the mechanism or processes which regulated the function of organs. Moreover, death itself was due to the suspension of activity of organs necessary to life, and this suspension was brought about by interference with those regulating processes. As the mechanism or process which results in a modification of the functional activity of the organ involves the transmission of impulses from one organ to other organs—as from the skin to the muscle—is usually spoken of as a "reflex" or "regulating process," we put forward the theory that a great class of symptoms was produced by the disturbance of these normal processes. What is meant by this can be illustrated by the consideration of some of the organic reflexes. In this inquiry we paid a good deal of attention to those symptoms whose production could be watched and the source recognised. Of these the organic reflexes afforded the best opportunity, as in the study of uterine contraction at child-birth. Here it was noted that the slighter contractions caused few reactions. As they increased in severity the reactions increased—the heart rate increased, the face flushed, the muscles of the abdominal wall were violently contracted, the breathing was held while "bearing down," great pain was felt in a definite area, at times nausea was experienced, with a flow of saliva and vomiting. All these phenomena were distinctly related to the contraction of the uterine muscle, and there was a relation between the number of organs stimulated to increased activity and the strength of the contraction. All the phenomena described above occur as a normal event. The same phenomena can occur as a result of a morbid condition. Under normal circumstances micturition takes place in a similar manner, with, however, only a few reactions. The impulses from the bladder produce relaxation of the sphincter, and it may be a mild contraction of the muscles of the abdominal wall with a sensation produced by the urine passing over sensory parts of the urethra. If there be a stone in the bladder, towards the end of micturition the bladder is stimulated to violent contraction as in the case of the uterus, with the production of a similar set of symptoms—pain in a definite region, straining and "bearing down" and disturbance of other organs. Defæcation is normally accompanied by a similar series of reflexes, but under abnormal circumstances, when the bowel is stimulated to violent contraction, we get a widespread disturbance of many organs, resulting not only in pain, "bearing down," but nausea, vomiting, sweating, and even syncope.

The similarity of the phenomena produced by these reflexes, normal and exaggerated, to the phenomena of bowel, renal and gall-stone colic, leaves little doubt that they are produced in the same way and indicate that the phenomena associated with the colics are due to an increased activity of normal

reflexes. Based upon these observations we put forward the theory that a great mass of symptoms were produced by the disturbance of normal reflexes.[1]

Recognising that a great group of symptoms was the result of an increase or decrease of functional activity, we then inquired what was meant by stimulation and inhibition. This has led to a long and intricate inquiry and has exposed many avenues for investigation. Before these can be explored, much preliminary work of an elementary kind has to be completed, and here we indicate the lines we are pursuing at present.

3. THE PRINCIPLE OF THE REFLEX ARC.

When we had advanced so far and formulated the theory that symptoms of disease were produced by the disturbance of normal reflex processes, we were confronted with the problem of its application. Merely to formulate a theory without demonstrating its usefulness is futile, for the proof of the validity of a theory is only to be found in its application to the solution of problems. We attempted its application in various ways. In the course of these attempts we recognised the very obvious matter that identical symptoms appeared in a variety of ways. Vomiting, for instance, could occur from impulses arising in remote organs, as the ureter, the brain, the fauces, as well as from the stomach itself. Lachrymation could arise from different causes. Pain might appear in the same situation from disturbance at different levels of the nervous system. Identical variations

FIG. 1.

Diagram of a simple reflex arc. A, the receptor of an afferent neurone; B, C, the centre of the arc in the central nervous system; D, the efferent neurone to the effector organ; E, the arrows indicate the direction of the impulses.

of the pulse might arise from disturbances at a number of different places.

As such symptoms are but the manifestation of the deranged function of the organ, it was necessary to know how the deranged function came about, and this involved the question of the process concerned in increasing or decreasing functional activity. It is manifest, therefore, that before we can appreciate the nature of a symptom we must have a knowledge of the parts concerned in regulating the function of the organ, of whose disturbed function the symptom is the evidence. This regulating mechanism consists of a chain of units (neurones) which convey impulses to the organs, and result in a modification of the function of the organ.

The recognition of this theory compelled us to look more closely into the process itself, and to study the units of which it was composed. In this endeavour it was found impossible to recognise the part played by each unit while the organ was working in a normal manner, but it was often possible to do so when the unit ceased to function or acted in an abnormal manner. By following this line of investigation we get a knowledge not only of the mechanism which produces some symptoms, but of the functions of organs and structures which so far have baffled inquiry. This simple concept that the function of a part is easier to be recognised when it fails than when it is acting normally is one of the principles which we find useful in our work.

As the reflex or regulating process is built up of a series of units the question arises, at which unit does the disturbance take place. Thus, if we represent the process by a simple diagram, as in Fig. 1, we find a number of units. There is the receptor (A) at which a stimulus is received. The stimulus is conveyed by the afferent nerve fibres (B) to the centre (C), where it is taken up by the efferent nerve (D), which conveys it to the effector organ (E), which gives a response. It is the abnormal character of the response which constitutes a symptom. Any one of the units which constitute this arc is liable to be affected by the agents of disease, so that the normal function of the unit is disturbed and an abnormal effect — i.e., a symptom—may be produced. While the typical effector organ is the muscle, yet it may be a gland, and in our view it may be the sensorium, as those organs are influenced in a similar way. Taking pain as an instance, we recognise a pain complex built up of a series of cerebro-spinal neurones. Thus there is a receptor organ A at the periphery, and the effector organ E is the sensorium (Fig. 2). When an adequate stimulus reaches any part of this complex the sensorium perceives the pain and refers it to the peripheral distribution at A. Thus a stimulus applied to the skin at A, or entering the complex at Y (as in toothache) or at Z (as in herpes zoster), the pain is referred to the peripheral distribution at A. If an adequate stimulus arises in organs (V) not supplied with cerebro-spinal nerves, but only with autonomic nerves, it is conveyed by these autonomic nerves to the central nervous system, and there affects the pain complex at C.

FIG. 2.

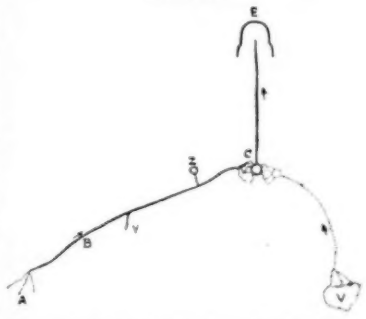

Diagram of the mechanism of pain. Impulses affect the receptor at A and are conveyed by the afferent neurone to the central nervous system, and to the sensorium E. Any impulse reaching this mechanism in any part of its course causes pain which is referred to the periphery at A. Impulses entering at Y, as in toothache, or at Z, as in herpes zoster, or at C from the viscera V produce pain which is referred to the periphery at A.

FIG. 3.

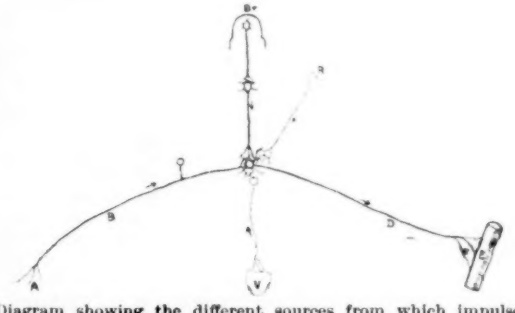

Diagram showing the different sources from which impulses may cause contraction of a voluntary muscle, E; from the brain (Br) in voluntary contraction; from the skin (A) in a cutaneous reflex; from the viscera (V) by the autonomic nerves as in visceral disease; in taking a part in organic reflexes as in respiration (R), parturition, vomiting, &c.

According to the principle of referred pain the sensorium refers this pain also to the periphery at A.

The regulating or reflex process is, however, not so simple as represented in the diagram. The connexion in the central nervous system is complicated by neurones interposed between the afferent and efferent neurones, and influences may reach and affect the arc from sources other than the periphery A. Thus, in the case where E, the effector, is a voluntary muscle, and A, the receptor, is in the skin (Fig. 3), the muscle

[1] The Theory of Disturbed Reflexes in the Production of Symptoms of Disease. Report of the St. Andrews Institute for Clinical Research, 1922, vol. i.

contracts in response to a stimulus or impulse from A as in the ordinary cutaneous reflex. But the same muscle is under control of the will, so that impulses from the cortex of the brain (BR) also cause it to contract. Again, the same muscle may become rigid and hard from impulses arising in some of the viscera (V), as in the hardening of the abdominal muscles in gastric ulcer, appendicitis, &c. Voluntary muscles contract also in response to the "organic reflexes," as in respiration (R), vomiting, defæcation, &c.

These complications of the process are all from parts outside the organ itself. Every organ possesses within itself structures concerned in regulating its functions. Little is known about these structures and their function, but the closer study of the matter leads to the conclusion that there are in all organs such structures, and they have a distinct purpose to serve, whose disturbance again leads to the production of symptoms. In no organ has the recognition of these structures been carried so far as in the heart, and until their discovery in recent years the problems connected with the manifestation of the heart in health and disease were incapable of solution. It may be pointed out that the recognition of the functions of the different structures has largely resulted from clinical study.

The diagram Fig. 4 shows the intrinsic regulating mechanism of the heart so far as it has been brought to light. The diagram represents two sets of structure, those concerned with the specific function and those concerned in regulating that function. The muscle wall of the auricle (A) and of the ventricle (V) represents the specific functional structures, the sino-auricular node (S.-A.N.), the auriculo-ventricular node (A.-V.N.), and bundle (A.-V.B.) represent the regulating mechanism. The stimulus for contraction arises in the S.-A. node, and, after causing a contraction of the auricle, stimulates the A.-V. node into activity. The A.-V. node then discharges impulses which are conveyed to the ventricle, which responds by a contraction.

FIG. 4.

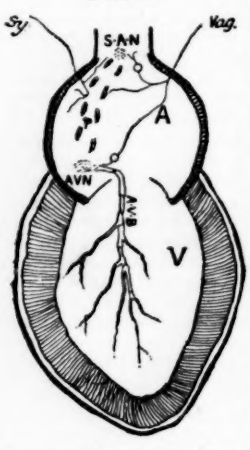

Diagram of the heart showing the parts concerned in regulating the rate and rhythm of the heart and the parts concerned in the contraction of the heart. In the former there are the sympathetic and vagus nerves, the sino-auricular node (S.-A.N.), the auriculo-ventricular node (A.-V. N.), and bundle (A.-V. B.). In the latter there is the muscular wall of the auricle (A) and of the ventricle (V).

When any agent or circumstance increases or decreases the heart-rate, with the normal rhythm, it is the S.-A. node which is being acted upon. This has to be kept in mind, for there is a tendency to assume that the rate of the heart is in some way dependent on or associated with the functional capacity of the heart. Thus the amount of increase in rate in response to effort has been taken as a measure in "exercise tests." If it be realised that the rate in response to effort is due to the susceptibility to stimulation of the S.-A. node it will be seen that the relation of rate to the functional efficiency of the heart is merely incidental. Alterations of rhythm may arise in consequence of disturbances at any unit of the regulating mechanism shown in Fig. 4. What is true of the heart is true of every other organ. There is an intrinsic mechanism in the stomach, bowel, kidney, liver, and, indeed, in every organ, including the voluntary muscles, which is barely recognised, but whose investigation is needed if we are even to understand the phenomena of ill-health.

The advantage of using the reflex arc as a guide for research is that it compels the study of the individual units of the arc, and this study brings out defects of our knowledge in a striking way, and not only brings them to light but may enable us to recognise how the defect can be made good. Each unit of the reflex is composed of a number of cells, and the question arises what part do they play individually and in combination in the performance of the normal function of the organ, and also in the production of symptoms. When it is realised that symptoms are but the evidence of an increase or decrease of functional activity, the question at once arises, how do these cells behave? This leads to further questions: What is stimulation, and what are these cells doing during periods of functional activity and during periods of quiescence? The attempt to answer these questions has led to the recognition of a very important law—the law of fluctuation—which has thrown a new light upon some features of functional activity.

THE SIMULATION OF ACTIVE PULMONARY TUBERCULOSIS BY PAINLESS MAXILLARY SINUSITIS.

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DURING the past 18 months my attention has been directed to certain cases of patients, who, while exhibiting all the symptoms of pulmonary tuberculosis, were, in fact, suffering from sinusitis of such a nature that no localising symptoms were present. That many of these patients had been diagnosed as pulmonary tuberculosis was not surprising; they generally presented not only the symptoms of tuberculosis—namely, cough, often waking the patient at night; morning sputum, yellow or green in colour, and often nummular; progressive wasting, a rise of temperature in the evening and after exercise—but also certain physical signs in the chest due apparently to bronchitis, which, while not typical of tuberculosis, are sufficient to render it extremely difficult for the physician to negative the diagnosis of pulmonary tuberculosis with which the patient is sent to him, while the fact of the absence of tubercle bacilli in the sputum does not, apparently, negative the presence of pulmonary tuberculosis.

Literature of the Subject.

Previous to the year 1916 medical literature contained little of note in relation to this subject. In 1914 StClair Thomson,[1] discussing the complications of sinus disease, wrote "The same cause (nasal and sinus suppuration) often explains the inveteracy of bronchorrhœa." In 1916 Rist [2] called attention to the association of chronic bronchial cough with chronic infection of the nasal sinuses which was frequently diagnosed as pulmonary tuberculosis. In 1916 Sergent [3] corroborated Rist's statements and referred to the cases as "faux tuberculeux." He reported that an incorrect diagnosis had been made in one-third of the cases of supposedly tuberculous soldiers, and that most of the mistakes occurred in the cases of men suffering from chronic bronchitis associated with chronic infection of the nose or nasal sinuses. Both Rist and Sergent stated that correction of the nasal disease resulted in the cure of the bronchitis. In 1919 Webb[4] referred to the dependence of many forms of bronchiectasis and bronchitis on disease of the accessory sinuses. In 1920 Mullen and Gilbert [5] referred to the association of nasal disease with chronic bronchitis. Also Mullen and Ryder [6] reported on experimental lesions of the lungs produced by inhalation of fluids from the nose and throat. In 1921 Webb and Gilbert[7] reviewed the literature of the subject and reported 38 cases of bronchiectasis or bronchitis associated with sinus infection. In 1922 Mackey,[8] as

a result of a bacteriological examination of the sputum and nasal discharge in 300 cases of bronchitis, stated that there was a definite connexion between the infection of the nasal passages and the liability to bronchitis. In 1923 Dunham and Sklavhem[9] drew attention to the same subject from the point of view of X ray diagnosis of lung conditions. Also McIntyre[10] reported on 37 cases which presented pulmonary manifestations incident to infection of the nasal sinuses, some of which showed typical febrile remissions characteristic of pulmonary tuberculosis.

Nasal Protective Mechanism.

In order to make clear the condition met with in these cases of sinusitis it is necessary to refer briefly to the nasal protective mechanism. When micro-organisms contained in the inspired air pass into the nose they are caught in the mucus secreted by and covering the surface of the nasal mucous membrane, and, enveloped in mucus, are passed backwards by the action of the ciliæ of the mucous membrane into the naso-pharynx. If, owing to the numbers of the organisms reaching the nose, or to the presence of some minor abnormality within the nose of such a nature as to hamper ciliary action, the micro-organisms are not removed sufficiently quickly, the latter multiply within the nose, and the resulting increase of toxin produces a reaction in the form of a congestion of the mucous membrane succeeded by an increase of mucous secretion. If the organism continues to multiply more quickly than it can be removed, an increase in the number of mucous glands takes place. Normally this reaction is sufficient to rid the nose of the presence of micro-organisms other than those normally passing into the nose with the inspired air. If, however, there is either a dental infection of the antrum or some obstruction to the opening of the antrum into the middle meatus, the secretion of mucus continues, but its removal by the ciliated epithelium is delayed. If the micro-organisms have time to multiply to such an extent that their toxins paralyse the ciliary epithelium, the mucus and pus collect within the antrum, and the condition known as an empyema of the antrum results. If, however, the obstruction is slight no empyema is formed; the ciliæ remain active and pass the mucus with its content of toxins and micro-organisms into the middle meatus, and backwards until it reaches the naso-pharynx, from which it is passed along the posterior wall of the oro-pharynx to the pouch between the epiglottis and the tongue and to the posterior part of the larynx, where it comes to rest in the space between the arytenoids and upon the posterior surface of the arytenoids.

Now in this latter case, where the obstruction is slight and no empyema is formed, the mucous membrane of the nose, in front of the opening of the maxillary antrum, rids itself of infection and appears on examination to be normal. But the mucous membrane of the nasal passages behind the opening of the antrum and that of the pharynx shows marked reactive changes. These reactive changes are caused by the flow of pus, or mucus containing micro-organisms and toxins, acting upon the mucous membrane. It is this pus or infected mucus which, passing down the pharynx, collects in the laryngo-pharynx and in the morning is expelled by coughing. The delay in the removal of the infected mucus allows of toxic absorption and as a result in some cases wasting, evening temperature, and night sweats take place. While a condition such as that described may produce symptoms very similar to pulmonary tuberculosis and hence lead to errors of diagnosis, it may also exist in the presence of pulmonary tuberculosis. The presence of this disease, however, modifies the physical signs found in the pharynx and larynx, and the condition of sinusitis complicating a pulmonary tuberculosis is therefore separately described.

Signs of Painless Maxillary Sinusitis.

The signs met with in the form of maxillary sinusitis which is apt to cause wasting and other signs of toxæmia, in the absence of pulmonary tuberculosis, without referred pain or anterior nasal discharge are as follows: By anterior rhinoscopy, the nose generally appears normal and the airway as a rule is good on both sides. There is, however, generally some slight enlargement of the middle turbinate on the affected side. By posterior rhinoscopy, the naso-pharynx contains muco-pus or mucus in excess. The posterior end of the middle turbinate of the affected side is enlarged, its outer or meatal surface may show irregular hypertrophy, and muco-pus may commonly be seen in the posterior end of the middle meatus. The soft palate is thick, being especially thickened upon its posterior surface, where a rounded thickening takes place above the posterior surface of the uvula. The reflex sensibility of the soft palate is generally greatly increased, and cases are met with in which spontaneous vomiting occurs, ceasing after a few days' painting of the pharynx with silver nitrate. The posterior wall of the oro-pharynx is red, and shows on its surface a network of blood-vessels between which the mucous membrane is raised above the surface and of a velvety appearance. The posterior surface of the tongue shows marked hypertrophic masses, particularly in and at the sides of the glotto-epiglottidean pouch.

The laryngeal changes depend upon the position of the epiglottis, and do not occur when the epiglottis is tilted backwards so as to touch the posterior pharyngeal wall. When the epiglottis is seen in its normal situation the laryngeal changes are as follows: The whole larynx is red, the posterior surface of the arytenoids is greatly hypertrophied, and the mucous membrane of the space between them has generally hypertrophied to such an extent that the mucous membrane covering the arytenoids forms an oblong bar of red colour from which the false cords take origin. In this hypertrophied mass the movements of individual arytenoids are difficult to distinguish, while a prolongation forward of the hypertrophy is often situated centrally and renders a view of the posterior commissure difficult to obtain. The mucous membrane covering the inner surface of the trachea is red, thick, and actively secreting, while the tracheal rings are rarely seen through the mucous membrane. The tonsils in these cases are in most cases hypertrophied, and I find that on draining the affected sinus the tonsillar enlargement often disappears. The tonsil on the side of the affected sinus is practically always the larger.

The condition found in the pharynx and larynx, as a result of infection by carious teeth of the maxillary antrum, is identical with the above; that due to dental sepsis without antral infection is similar, but of less severity, and the signs observed by posterior rhinoscopy are absent. Occasionally the occurrence of sinusitis with the most advanced stage of laryngeal tuberculosis produces a somewhat similar clinical picture, but the intense redness and congestion of the larynx, coupled with the ulceration in the region of the posterior commissure of the larynx, and possibly the spread of this ulceration into one or both cords, prevent errors of diagnosis.

When pulmonary tuberculosis and sinusitis are present together the signs are considerably modified. Before describing them it is, however, necessary briefly to describe the conditions present in the nose and throat in pulmonary tuberculosis without sinusitis. Certain conditions are so regularly found in the nose and throat in patients suffering from pulmonary tuberculosis when neither laryngeal ulceration nor sinusitis are present that they must be regarded as results of this disease. There is a pallor and lack of reflex sensibility of the larynx, oro-pharynx, and laryngo-pharynx, and to a less extent of the naso-pharynx; the mucous membrane throughout is thin and lacks reaction; the larynx is pale, the arytenoids small, the inter-arytenoid space marked; the vocal cords appear thin; posteriorly in the posterior commissure the mucous membrane is white and thickened. On phonation this thickening is squeezed into a ⌒⌒ shaped protuberance of about 1 to 2 mm. in thickness. This ⌒⌒ shaped form is

due apparently to fixation of the mucous membrane centrally to a median raphé. When ulceration occurs it begins, as a rule, at the bottom of this central or fixed portion.

The condition found when the above laryngeal conditions caused by pulmonary tuberculosis are complicated by the presence of a sinusitis are as follows: The pallor and lack of reflex sensibility of the mucous membrane of the palate, pharynx, and larynx are retained. The naso-pharynx contains pus or infected mucus, which is not infrequently seen under the middle turbinate of the affected side, but cannot be observed by anterior rhinoscopy, the nose appearing normal except for a pallid and thin mucous membrane. The oro-pharynx shows a network of blood-vessels, between which the mucous membrane shows a pale velvety swelling. The larynx is pale, the mucous membrane covering the arytenoids shows pallid thickening, and the inter-arytenoid space is diminished or absent. The mucous membrane of the arytenoid region tends to form an oblong bar, smaller than that met with in sinusitis without pulmonary tuberculosis, and the forward prolongation met with in that disease is more marked, and not infrequently overhangs the larynx. The mucous membrane of the trachea is thin, and the rings are plainly seen. The tonsils are small and pale; any enlargement is generally of the lower pole.

Diagnosis.

1. *Pulmonary Tuberculosis.*—The thinness, pallor, and lack of reflex sensibility of the mucous membrane, larynx, pharynx, and soft palate are so rarely absent in the earlier stages of pulmonary tuberculosis that they should be considered with the remainder of the facts in establishing a diagnosis of this complaint. The following case is instructive:—

CASE 1.—Male, aged 28, admitted to sanatorium for hæmoptysis on five occasions during the last ten years. Physical signs in chest reported as slight, tubercle bacilli never found. He consulted me for enlarged tonsils, removal of which had been recommended by his doctor. Both tonsils were large and the mucous membrane of the larynx and pharynx thick and red. The balance of evidence seemed against a diagnosis of pulmonary tuberculosis; I therefore estimated the time of blood-clotting, which on three examinations on different days averaged 32 minutes. Closer investigation of history and physical signs showed the condition to be sinusitis complicating hæmophilia.

2. *Sinusitis.*—Patients with rhinitis or rhinitis with sinusitis complain of nasal obstruction; those with obstructive sinusitis complain of pain. In patients having well-marked sinusitis with only slight inflammation of the visible nasal mucosa the pus finds its way into the naso-pharynx, and thence to the laryngo-pharynx, from whence it is coughed up. If the degree of obstruction to the outflow of the affected sinus is slight, pain is absent; the patient is not infrequently unaware of the nasal discharge, and seeks advice for a chest condition. Diagnosis rests primarily on the presence of pus, which can be seen dropping from behind the soft palate. This flow of pus is frequently intermittent. Where a network of enlarged venules is seen on the posterior wall of the oro-pharynx a focus of infection will nearly always be found in the teeth, in the nasal passages, or in both. The chest condition cannot be regarded as connected with a nasal infection unless a history of post-nasal discharge can be elicited, or unless pus can be seen in the naso-pharynx or the posterior portion of the nose. This pus generally originates in the sinuses, but it may also be due to conditions in the naso-pharynx, such as suppurating adenoids, or to an enlargement of the visible nasal mucous membrane with an increase in number of the mucous glands. The commonest sinus infection met with in chest conditions is that of the maxillary antrum; this is frequently secondary to a dental condition. It is rare to meet with maxillary sinusitis due to dental conditions unless the nerve of the offending tooth is dead. If an abscess at the apex of the root of a tooth ruptures into the antrum, the pain in the tooth ceases as soon as the pus is no longer under pressure. When chronic post-nasal discharge is present, crowned and other dead teeth should be X rayed and, if necessary, extracted. The existence of sinusitis of the anterior group may be regarded as probable if pus can be seen by posterior rhinoscopy in the posterior part of the middle meatus, and as still more probable if pus is washed out from beneath the middle turbinate by means of liquid paraffin introduced through a ureteral catheter. If after washing out of the middle meatus pus is found on washing out of the antrum, the case is one of maxillary sinusitis; but if no pus is found in the antrum the presence of pus beneath the middle turbinate points to ethmoidal or frontal sinusitis. Frontal and anterior ethmoidal sinusitis do not complicate the diagnosis of chest conditions, because pain is always present in these conditions, and attention is early attracted to the nasal condition. Posterior ethmoidal and sphenoidal sinusitis have been met with in conjunction with infection of other sinuses, but not otherwise. The presence of pus in the superior meatus, or between the middle turbinate and the septum, suggests the diagnosis, which is confirmed by the removal of pus from the sphenoidal sinus by lavage.

Treatment.

The treatment of sinusitis without tuberculosis follows the usual lines and calls for no comment. It is becoming more generally recognised that many cases of chronic bronchitis have their origin in an infection of the accessory sinuses. The treatment of sinusitis complicating pulmonary tuberculosis involves a consideration of very complex pathological processes. Tubercle bacilli shut off from the general blood-stream in miliary tubercles produce toxins which, passing into the general circulation, cause antitoxins to be formed, and an antitoxic balance is produced. Few antibacterial substances are produced, and the tubercle bacilli continue to live, but not to multiply unless some change in their environment takes place.

Micro-organisms in the sinuses continue to multiply and secrete toxins, which being absorbed by the mucous membrane produce antitoxins, and an anti toxic balance is produced. The bacteria in the sinuses do not reach the blood-stream; hence few, if any, antibacterial substances are produced. The presence of toxins within the nasal passages produces a reaction within the mucous membrane which may remove the bacteria, but the existence of a chronic sinusitis is evidence that the bacteria have not been removed, but that they have adapted themselves to their altered environment, in which process they generally become diminished in virulence, so long as the environment is not again altered. Any alteration of environment tends to alter this virulence, and if there is for any reason an increased absorption of toxin above that against which the body is protected, it upsets not only the antitoxic balance of that micro-organism, but also that of the tuberculous infection, and a flare-up of the tuberculous processes results. It is, therefore, of paramount importance to immunise the patient to a high degree against the nasal infection and guard against development of micro-organisms within the sinuses by packing these where possible with some antiseptic of prolonged action, such as iodoform emulsion. In general, patients with tuberculosis of the lungs should be operated upon under local anæsthesia, lest a bronchitis or pneumonia resulting from the inhalation of the anæsthetic activate the pulmonary tuberculosis.

Case Notes.

The following cases well illustrate the simulation by sinusitis of pulmonary tuberculosis:—

CASE 2.—Male, aged 28, examined on July 17th, 1919. Area of cardiac dullness and heart sounds normal. Pulse 80–120–80 good. Lungs: Harsh breathing right apex, expiration prolonged, occasional crepitations heard. Diagnosis, pulmonary tuberculosis.

On Feb. 24th, 1921, tuberculosis dispensary states "unable to work 13 weeks." On April 22nd general condition fair, tongue clean, teeth fair, heart sounds normal, pulse 72–120–84;

tolerance fair; arrhythmia after exercise. Lungs: retraction both apices, dullness right, occasional crepitations right apex, a few moist sounds at both bases. Abdominal splashing. Examined at dispensary on March 6th, 1922. Weight 114 lb.; teeth bad, slight retraction apices, no definite dullness. Expiratory murmur at right upper lobe, harsh breath sounds at left upper lobe. On March 5th, 1923, weight 116 lb., heart normal, no loss of resonance, well-formed chest, no active signs of pulmonary tuberculosis.

Admitted to hospital for observation on April 19th, 1923. Complained of cough, expectoration, and giddiness. Chest emphysematous, hyper-resonant except right apex, no adventitious sounds, urine normal, weight in clothes 113 lb. Sputum 11 times negative for tubercle bacilli, complement-fixation test positive, Wassermann reaction negative. X ray screen; lungs clear up well, diaphragm excursion 1½ each side. Plate, nothing of note detected. Physician reported: "I cannot find any evidence of pulmonary tuberculosis." Laryngologist reported: Right maxillary sinusitis with laryngeal and tracheal changes secondary to this." Sputum examined microscopically showed many epithelial cells and polymorphonuclear leucocytes. Exercise temperature tested daily for three weeks rose at times to 99°; pulse, on one occasion 90, averaged 70.

CASE 3.—Male, aged 32, examined on Feb. 23rd, 1918. Chest flattened, apices shrunken, impaired resonance, roughened breathing right apex, marked venous hum at root. Husky voice, occasional night sweats; vocal fremitus increased over right apex; has lost 2 st. in weight. Diagnosis, pulmonary tuberculosis.

On Oct. 14th slight sticky rhonchus heard at right apex behind. Chest: expansion 32½–35. Weight 146 lb.; stated, "No cough or sputum." On August 9th, 1919, patient felt about the same; well-nourished, healthy, weight 152 lb. stripped; expansion 32½–35½, right less than left; flattening below both clavicles. No physical signs of active disease. Vocal resonance increased right apex. Diagnosis, pulmonary tuberculosis (quiescent). On Sept. 28th, 1920, stated "about the same"; much cough and phlegm, no blood. Chest expansion 2 inches; flattening both apices. Percussion normal both apices. Bronchial breath sounds left apex. Râles and rhonchi numerous left apex. Heart and nerves normal. On August 18th, 1921, fat and flabby. Lungs: Marked flattening both apices. Expansion 2¼. Percussion note dull, both apices and right base. Breath sounds harsh, no adventitious sounds. Heart nil. Pulse-rate 84; nervous system nil, except tremor of hands. On Sept. 10th, 1922, stated "about the same." Still very fat and flabby. Pulse weak but regular. Right apex percussion note dull. Breath sounds harsh. Breath sounds weak behind in right lung. Right lung, movement less than left. Fine wheezing at right apex, left lung, heart, and nerves nil.

On March 21st, 1923, admitted to hospital for observation. Complained of breathlessness after exertion, slight cough, and frothy phlegm. Heavily-built, chest wall thick. No adventitious sounds or abnormal physical signs detected in chest. Urine normal. Weight 190 lb. in clothes. Average temperature, A.M. 97·2°, P.M. 98·2°; average post-exercise temperature 98·4°; average post-exercise pulse 78. Tubercle bacilli absent. Complement-fixation test negative, Wassermann reaction negative. X ray report: Screen, lungs clear up well; diaphragm excursion right 2¼, left 2. Plate showed nothing of note. Physician reported: "I cannot find any evidence of pulmonary tuberculosis." Laryngologist reported: "The nose, naso-pharynx, and larynx show changes secondary to the left maxillary sinusitis which is present, also ? right maxillary sinusitis."

Patient discharged from hospital on the same day.

Prognosis.

From the examination of something over 100 cases of tuberculosis without sinusitis, and about the same number of cases of tuberculosis with sinusitis, I am convinced that from the above signs no conclusion can be drawn as to the activity of the pulmonary tuberculosis. I have reached this conclusion on account of two classes of case—one in which pulmonary tuberculosis had been apparently inactive for periods varying between two and four years, sinusitis not being present, but in which the pallor and lack of reflex sensibility were still marked; the other in which pulmonary tuberculosis as judged by physical signs, absence of tubercle bacilli, &c., was inactive, but in which an active sinusitis was present and loss of weight continued. The condition of a sinusitis without pulmonary tuberculosis gives rise to bronchitis. To what extent such a condition, when active for several years, can shorten life is in the present absence of statistics a matter of surmise only. In general the observations I have made point to a continuance of the condition, with resultant damage to the bronchial mucous membrane of more or less severity, until other factors increase the acuteness of the sinusitis and cause pain and nasal discharge, thus revealing the cause of what has previously been treated as an affection originating in the chest.

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THE INCIDENCE OF MALIGNANT DISEASE IN THE APPARENTLY BENIGN ENLARGEMENT OF THE PROSTATE.*

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I WOULD like at the onset to make a clear definition of the point that I wish to raise; I wish to discuss, not those cases of prostatic enlargement which are obviously carcinomatous or even suspicious of carcinoma when they first come under the notice of the surgeon, but rather those cases which clinically present all the features of the ordinary simple prostatic enlargement, and which are operated upon as such, but in which, owing to some unusual feature in the operation or on subsequent microscopical examination of the organ removed, malignant disease is found as an unsuspected complication. Four such cases have recently come under my observation, and I therefore bring the subject forward for consideration in the hope that some points which have escaped me may be elucidated and may assist in correct diagnosis before operation is advised.

Thus I eliminate at once those cases of alteration in micturition with difficulty, frequency, and perhaps hæmaturia which on rectal examination present a firm, inelastic or nodular swelling of the prostate, with fixation or lateral infiltration in the pelvic lymphatic areas, and confine myself to those cases in which the digital examination of the prostate per rectum shows a soft, elastic, movable enlargement of the gland of uniform consistence, which has been looked upon as the type of enlargement variously spoken of as adenomatous, cystic adenoma, hyperplasia, or as chronic lobular prostatitis.

Case Records.

Perhaps it would be best at this stage to give a brief note of the cases upon which my remarks are based:—

CASE 1.—The patient, aged 75, commenced to have trouble with increasing frequency of micturition about five years ago, progressing gradually until it amounted to every hour by day and about five times at night, with occasional involuntary dribble. He had to strain to micturate, but there was no pain, no backache, and no increased thirst. No hæmaturia.

* A paper read at the Urological Section of the Royal Society of Medicine, May 31st, 1923.

Condition on Examination.—A rather feeble old gentleman. Pulse 76, vessels slightly thickened. Blood pressure 160 mm. Neither kidney nor liver was palpable; bladder was not felt distended. Urine passed in forceless dribble, clear, acid, sp. gr. 1021, no albumin or sugar. Urea 2·3 per cent. Catheter passed easily; residual urine 3½ oz. Per rectum, prostate uniformly enlarged, smooth, elastic, and movable. Easily felt bimanually.

Operation.—On July 20th, 1921. The prostate projected into the bladder as an apple-like swelling, smooth, and elastic. Enucleation was easy, though there was some increased fixation in the posterior part of the gland. On subsequent examination with the patient in the Trendelenburg position and the cavity illuminated, two small firm nodules were found in the posterior part of the prostatic cavity and were removed.

The prostate removed appeared to be of the ordinary fibro-adenomatous type, but it was rather ragged on the posterior aspect. On microscopic examination of this portion of the gland, and also of the small nodules removed from the posterior part of the cavity, adeno-carcinoma was found to be present.

Course of Case.—When seen again four months later, patient looked well and passed urine comfortably and with good stream. Frequency five times in day and once at night. A 14 steel sound passed easily, but there was a feeling of roughness in passing through the prostatic area, like rubbing against wet wash-leather. Per rectum the prostatic area was small, but there was a firm band of infiltration as thick as the forefinger, passing outwards and upwards on the right side, in the area of the pelvic lymphatics. No glands were felt. The patient died on August 17th, 1922, 13 months after the operation, from progressive weakness, but Dr. G. S. Hovenden wrote that at no time had he the slightest difficulty in passing a full-sized catheter. No post-mortem was obtained.

CASE 2.—Major A., aged 61, was seen with Dr. W. W. Shackleton on Dec. 1st, 1922. In December, 1919, he consulted his doctor owing to the occurrence of a blood-stained emission; he was then found to have an enlarged prostate, and on catheterisation was found to have residual urine. From this time he had increasing trouble in micturition, hesitation, and frequent desire. In September, 1921, he had acute retention, requiring catheterisation. Frequency gradually increased to two-hourly day and night, and a month ago his doctor found his urine very purulent and the bladder considerably distended. He had no backache, but marked thirst and loss of appetite. Had never seen blood in the urine.

Condition on Examination.—Thin, with flushed cheeks. Arteries thickened; blood pressure 170 mm. Tongue dry and brownish. The urine passed was turbid with pus, alkaline, sp. gr. 1004, and albumin was present. The bladder remained distended to within 1 inch of the umbilicus after micturition. Neither kidney was palpable. Per rectum the prostate was enlarged, flat, smooth, elastic, and readily movable. Blood urea was 72 mg. per 100 c.cm.

On Dec. 7th, 1922, a Pezzer tube was passed into the bladder above the pubes under local anæsthetic. On the following day the urea-concentration test only showed a percentage urea of 1·5 and 1·6 in the second and third hours. On the 17th blood-urea had fallen to 38 mg. per 100 c.cm. and urine urea concentrated to 2 per cent. and 2·2 per cent. in the second and third hours.

Operation.—Prostatectomy on the 19th. Enucleation was easily carried out except in the upper and posterior part, where the gland was adherent. The gland was of moderate size and showed many adenomatous, rounded masses, but was lacerated on the posterior aspect. Dr. H. J. B. Fry reported that the glandular structure showed irregular invasion of the surrounding tissue with loss of basement membrane and irregular mitoses, indicating adeno-carcinoma. This opinion was confirmed by Dr. S. Wyard.

Course of Case.—Except for some trouble from hæmorrhage on the fifth day, the patient did well and was healed, and passing urine naturally, on Jan. 5th, 1923. On Feb. 14th he looked well and tongue was clean and moist. A catheter was passed easily. Per rectum the prostatic area was soft, but there was some thickening in the left pelvic lateral space, suggesting commencing infiltration of the lymphatic area.

CASE 3.—The patient, aged 62, had had trouble with frequent micturition and slow forceless stream for four years, gradually increasing until three weeks ago, when he had acute retention, for which a catheter was passed. Again retention nine days ago, since when a catheter has been passed twice a day; he only passes a few drops of urine per urethram when straining at stool. No hæmaturia; no backache or thirst.

Condition on Examination.—A thin, hard-working man. Arteries thickened. Tongue moist and clean. Neither kidney nor liver felt. Bladder distended to 2 inches above the pubes. Catheter passed and 20 oz. of urine drawn off, hazy, acid, sp. gr. 1016, albumin present. Per rectum the prostate was enlarged, smooth, elastic, but firm; the left side was larger than the right. The gland was movable and could be felt bimanually.

Operation.—On June 28th, 1921, the left lobe of the gland was enucleated with great ease, but the right was somewhat adherent in the lateral aspect. On subsequent examination this surface was found to be ragged, though the whole appeared to be the usual soft so-called adenomatous enlargement. Microscopic examination by Dr. G. L. Eastes showed, however, active adeno-carcinoma, consisting of polyhedral cells arranged in primitive glandular form.

Course of Case.—Patient did well after operation, and the wound closed in 20 days. During convalescence a tube of radium was passed into the prostatic cavity and allowed to remain in situ for four hours on alternate days for six applications. Six months later patient was passing urine with good force, but the frequency had increased to three-hourly by day and twice at night. No straining. Urine clear and free from albumin. He complained of aching in the right sacro-iliac and right sciatic areas. Glands could be felt to be enlarged in the right iliac fossa above Poupart's ligament, and on rectal examination there was a hard, nodular infiltration in the right lateral pelvic lymphatic area. The patient lost weight rapidly, though he had no further difficulty in micturition, and died in February, 1922, eight months after operation.

CASE 4.—The patient, aged 78, was seen, with Dr. C. E. Sparks, on April 15th, 1922. He had had increased frequency of micturition for about five years, chiefly during the day, with feeble, forceless stream. No pain. On 13th he had acute retention and his doctor could only pass a No. 6 catheter with difficulty. The next day, the retention remaining, no catheter could be passed, and he was in considerable pain from distension of the bladder, with overflow dribbling of urine.

Condition on Examination.—His tongue was dry and glazed. He had bilateral backache and marked thirst. The bladder was very distended and tense. Per rectum the prostate was found to be enlarged, soft, uniform in consistence, and movable. Attempts at catheterisation failed, a stricture and false passage being present in the bulbous urethra. A small tube was passed into the bladder above the pubes and the urine slowly drained off. The urine was blood-stained, sp. gr. 1012, and contained albumin, but no sugar. Ten days later his tongue was moist and clean, thirst had gone, and the urine was clear. The blood-urea was 41 mg. per 100 c.cm., but there was no test previous to the vesical drainage for comparison.

Operation and Course of Case.—Under an anæsthetic the stricture was divided and the suprapubic incision was enlarged. The prostate was projecting into the bladder in bilateral form and was easily and rapidly enucleated. The gland showed the usual rounded fibro-adenomatous masses, but it was noted that the right lobe was more dense than the left and was slightly reddened. Pathological examination by Dr. Eastes showed that there was undoubted carcinoma present in a small area in the centre of the right lobe. The patient made an excellent recovery from the operation, but died subsequently from diabetic coma.

I would like to mention another case (for the notes of which I am indebted to my colleague, Mr. Percival Cole), though I do not include it in my series.

CASE 5.—This patient, aged 75, was operated upon in 1917 for an apparently simple prostatic enlargement, having had prostatic symptoms for three years and for the three weeks previous to operation complete retention requiring catheterisation. The prostate was enlarged, smooth, and elastic, and looked upon as adenomatous. It was easily enucleated and the pathological report returned as adenomatous, though it does not appear that any microscopic section was made. In February, 1923, he was again admitted to hospital owing to difficulty in micturition. Frequency was increased to every half-hour during the day and four to five times at night with great straining. No catheter could be passed, each being arrested in the prostatic urethra. Under spinal anæsthesia a filiform bougie was passed with difficulty and the firm tissue in the prostatic area incised with an internal urethrotomy knife. This was followed by rigors and hyperpyrexia, sweating, and death after 19 hours. At the post-mortem the whole of the prostatic area was found to be occupied by firm hard tissue, which proved on microscopic examination to be spheroidal-celled carcinoma. There was glandular infiltration in the iliac and lumbar glands, but no evidence was found of visceral metastases. This case is very similar to the one reported by Mr. R. Thompson at the last pathological meeting of the Section of Urology of the Royal Society of Medicine.

Analysis of Cases.

Analysing the records of these cases, it will be seen that they present the usual train of symptoms spread over some years of gradually increasing difficulty and frequency of micturition associated with the ordinary benign prostatic enlargement, and that clinical examination of the prostate by digital palpation per rectum failed to convey any suspicion of malignant disease. It was only at the operation for removal of the gland that any difference from the usual simple enucleation was found, when subsequent microscopic examination revealed the presence of carcinomatous infiltration in the area in which some fixation of the gland occurred to the surrounding "capsule." In the first three cases the operation was followed by carcinomatous infiltration in the lateral pelvic lymphatic space which was certainly not present before it. It is a noteworthy fact, however, that micturition was able to be performed freely even when this recurrence was well established. In one case the enucleation presented no difficulty from fixation and subsequent microscopical examination revealed a small central focus of malignant disease in one lateral lobe, this finding being even a greater surprise than in the cases in which some capsular adhesion had been found. I am of the opinion that this condition happens more frequently than may be supposed, and is an indication that every gland removed at operation must be submitted to a close microscopical examination before it can be pronounced wholly innocent. In each case the average length of history given by the patient before seeking advice was about four years, so that the progress of each case cannot be looked upon as any more rapid than the ordinary benign prostatic enlargement; neither pain nor hæmaturia had been a feature in any case.

I must confess that in many cases of prostatectomy the macroscopic appearance of the gland removed has given rise to no suggestion of malignancy, so that in a large number of my cases no critical pathological examination has been made. Since I have become aware of the possibility of unsuspected malignant disease being present, however, I have had each gland examined, and I find that these cases form four in a total of 28 consecutive prostatectomies, or roughly 14 per cent. Owing to my failure to have all the glands examined previously to this series, figures from my former series of cases would not be reliable. I have, however, enlisted the services of Dr. Eastes and Dr. C. Fletcher, and I have their permission to make use of the following figures. In a series of 678 prostates removed by operation and submitted to them at the Laboratories of Pathology and Public Health for pathological examination during the last ten years, no less than 174, or 25·7 per cent., were definitely malignant, whilst they classify 58 others, or 8·6 per cent., as border-line or pre-cancerous; 443, or 65·3 per cent., were innocent

TABLE I.—*Prostates Removed by Operation during the Last Ten Years and Submitted to Pathological Examination at the Laboratories of Pathology and Public Health. Figures given by Dr. G. L. Eastes and Dr. C. Fletcher.*

		Per cent.
Definitely malignant	174	= 25·7
Border-line cases (pre-cancerous) ..	58	= 8·6
Innocent (adenoma)	443	= 65·3
Tuberculous	3	= 0·4
Total ..	678	

(adenomatous), and 3, or 0·4 per cent., were tuberculous (Table I.). Dr. Fletcher adds the following criticism of these figures:—

"I think the findings, however, must be discounted to some extent by the fact that many surgeons send for examination only those prostates about which they themselves have doubt and destroy the others. On the other hand, in the vast majority of these prostates, only certain parts have been cut and not complete cross-sections of both lobes—in fact, in many cases I only received a piece of the organ. This would militate against the other factor, but I think not to the same extent, and I consider that the percentage of malignant prostates given by these figures is higher than it would be if all prostates removed were examined. Those classified as pre-cancerous are border-line cases about which pathologists might well differ, and I should think most are innocent."

These figures and Dr. Fletcher's remarks upon them are very valuable, representing as they do the microscopic findings in prostates removed by operation in the practice of a large number of surgeons; but, as he justly remarks, the incidence of carcinoma in 25·7 per cent. is probably higher than the true proportion. I think, however, that we may with fair justice assume that the operation for the removal of the gland in the very great majority of these cases was performed under the diagnosis of a simple enlargement of the organ, though I know that I for one have not sent him many that I have removed, because I thought the naked-eye appearance was conclusive that the tumour was innocent, an error now rectified.

Findings of Other Investigators.

H. Wade, of Edinburgh, in 1914 found that in a series of 134 specimens of enlarged prostates, 14 were carcinomatous. Of these 14 cases, 10 were removed by operation and were similar to the cases I have described—namely, that they were removed under the assumption that they were benign tumours and only found to be carcinomatous on subsequent microscopic examination. He states that, in these cases, the carcinoma commenced in the centre of an area of chronic lobular prostatitis (by which term he describes the common adenomatous enlargement), remarking that by this fortunate circumstance enucleation is at first easy. I would remark that in three out of four of my cases the malignant disease appeared to commence in the periphery of the gland and in only one in the centre. Wade further emphasises the necessity of obtaining complete sections of the whole gland before an opinion can be expressed upon the existence of early carcinoma. He is of the opinion that the malignant change occurs in a gland that has already undergone enlargement by innocent "hypertrophy."

Wilson and McGrath in 1911 noted that carcinoma may be found in a prostate removed by operation for apparent benign enlargement, and remark that the malignant focus appears to commence in an area of prostatic enlargement. At the meeting of the International Urological Congress, held in London in 1911, a long discussion took place on the ultimate results of prostatectomy. In the report of the various papers there submitted I am unable to find any definite record of the finding of carcinoma in the apparently benign enlargement. Hugh Young, in a series of 450 cases operated upon by him, gives no record of any found to be malignant, but quotes some cases in which, as the result of operation, the urinary obstruction was not completely removed or partially returned. Most of these cases improved after second operations, but some may have been unsuspected carcinoma. Proust, Zuckerkandl, Thomson Walker, and Cuthbert Wallace in the same discussion make no reference to malignant disease. Fullerton, of Belfast, mentions two cases in which the firmness of the gland on rectal palpation gave rise to a suspicion of malignant disease, and in both the microscopic examination proved this to be present, but neither could be called unsuspected. Marion, Casper, and Pasteau also do not refer to it.

A serious note of the condition was brought out by Sir John Thomson Walker in an address on Some Problems of Prostatectomy, delivered before the Harveian Society in November, 1922,[2] where, in discussing the advisability of operation in early cases, he gave as a reason for this that malignant changes may occur in a prostate the seat of simple benign enlargement. He states that it may occur at the periphery of one lobe as a localised firm, inelastic area, which at operation strips with difficulty, or that it may occur in the centre of a lobe that has shelled out readily at the operation. In a series of 100

[2] THE LANCET, 1922, ii., 1121.

consecutive cases of prostatectomy for apparent simple enlargement by Sir John Thomson Walker, no less than 16 were found by the pathologist to show areas of carcinomatous change. In 11 of these 16 cases there was nothing in the clinical examination to suggest malignancy in any form; in four there was a small firm area on one side and in one the prostate was somewhat firm in consistence. These figures are of the utmost importance; if the combined figures reported by Wade, by Thomson Walker, and those reported above by me be added together it gives a total of 34 cases of unsuspected carcinoma out of 262 cases in prostates removed by operation for apparent benign enlargement in three series of consecutive cases without selection, or a percentage rate of nearly 13—a sufficiently large proportion to carry in one's mind when discussing with a patient the necessity of early operation and in outlining the prognosis after operation in these cases (Table II.).

TABLE II.—*Malignant Disease found Present in Apparently Benign Prostatic Enlargement in Three Consecutive Series of Cases.*

		Per cent.
By Mr. H. Wade	14 in 134 cases	= 10·4
By Sir John Thomson Walker	16 in 100 ,,	= 16
In my series of recent cases ..	4 in 28 ,,	= 14·3
Total ..	34 in 262 cases	= 12·9

Pathological Considerations.

In putting these remarks before you, I have tried to refrain from any discussion on the true pathology of the enlarged prostate, and only do so at this stage to draw a certain analogy with the types of carcinoma seen in other organs of the body. The senile enlargement of the prostate has been termed by different pathologists adenoma, cystic adenoma, simple hyperplasia, chronic lobular prostatitis, and interstitial prostatitis, and as far as I can gather they have not yet made up their minds as to which class it is to be labelled. Pathologists are not the only people in doubt about the prostate, for surgeons still seem to be divided in their opinion as to whether the operation of prostatectomy is to be regarded as a complete enucleation of the whole gland or as the removal of adenomatous masses from a false capsule formed of compressed prostatic tissue. Without venturing upon any decided opinion on these vexed questions, which might in these days of prostatic surgery change the forcible opinions expressed in the earlier days, my motive this evening is to direct your attention to the comparative frequency with which carcinoma may exist as a small undetected focus in a prostate which is the seat of senile enlargement. The analogy which I wish to make is that between these cases and those of carcinoma in other glandular structures in the body. In the breast, in the tongue, the stomach, and the intestine, as well as in other organs, the opinion has been expressed that carcinoma may occur in areas which have been the seat of simple chronic inflammation or of ulceration. May not the same sequence occur in the prostate, and thus carcinoma commence as a focus in a gland already the seat of the benign enlargement?

I wish to take this opportunity of thanking Dr. Eastes and Dr. Fletcher for the trouble they have taken in obtaining the figures relating to pathological examinations carried out at the Laboratories of Pathology and Public Health.

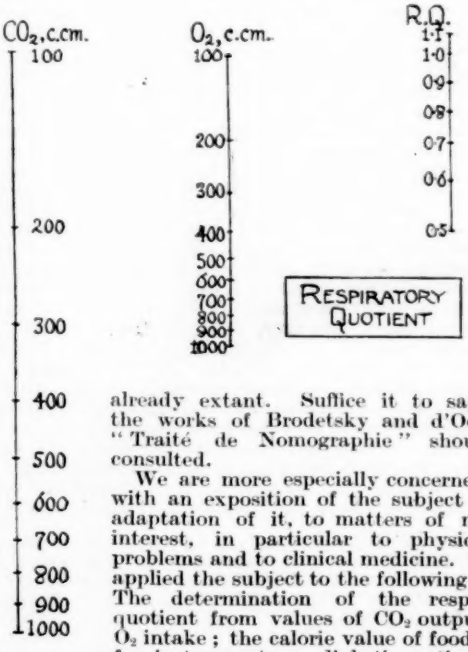
DONATIONS AND BEQUESTS.—The late Mr. J. Bright James, of Hartley, near Plymouth, left by will £1000 to the South Devon and East Cornwall Hospital; £1000 to the Royal Albert Hospital, Devonport; £1000 to the Blind Institution at Plymouth, and £1000 to the Blind Institution at Devonport.—By the will of the late Mr. William Tozer, of Tapton Edge, Sheffield, the testator left £500 to the Royal Infirmary, Sheffield; £500 to the Royal Hospital, Sheffield; £500 to the Jessop Hospital for Women, and £500 to the Children's Hospital, Sheffield.—Under the will of the late Mr. Joseph Taylor, of Balls-road, Birkenhead, Cheshire, the Birkenhead Borough Hospital will receive £250 and the Birkenhead and Wirrall Children's Hospital £200.

APPLICATIONS OF NOMOGRAPHY TO MEDICINE.

BY W. A. M. SMART, M.B., B.S., B.Sc. LOND.,
DEMONSTRATOR IN PHYSIOLOGY AND PHARMACOLOGY, LONDON HOSPITAL.

NOMOGRAPHY is now so well established that few words of introduction are necessary. There are many formulæ in physics, engineering, and aeronautics in which three or more variables, or powers of variables, occur. In the ordinary way, space of three or more dimensions would be required for their representation, and this in many cases would be inconvenient or even impossible. Nomography is a geometrical device whereby the relation between any number of such variables may be represented graphically on a plane surface such as a sheet of paper. There is no division into squares, but merely a set of lines, which may be straight or curved, parallel or not, as the case may be. The lines are suitably graduated, each according to one of the variables, and the relation between these variables is such that a straight line can always be drawn through corresponding quantities. It is not proposed to enter here into an account of the method of determining the graduations, the position of the zeros of the scales, or their relative distances apart. This must be sought in the books and literature already extant. Suffice it to say that the works of Brodetsky and d'Ocagne's "Traité de Nomographie" should be consulted.

FIG. 1.



We are more especially concerned here with an exposition of the subject in my adaptation of it, to matters of medical interest, in particular to physiological problems and to clinical medicine. I have applied the subject to the following cases: The determination of the respiratory quotient from values of CO_2 output, and O_2 intake; the calorie value of food given, for instance, to a diabetic patient, and consisting of various weighed amounts of protein, fat, and carbohydrate; the calorie value per kilo body-weight; and the determination of pH value from a knowledge of the hydrogen-ion concentration. The Du Bois formula connecting surface area, body-weight, and height has already been nomographically demonstrated by Feldman and Umanski.[1]

The Respiratory Quotient.

The vertical line on the left (Fig. 1) is graduated logarithmically from above downwards to represent c.cm. of CO_2 exhaled, while the centre line, likewise graduated downwards, is only half the scale of the former and represents the number of c.cm. of oxygen

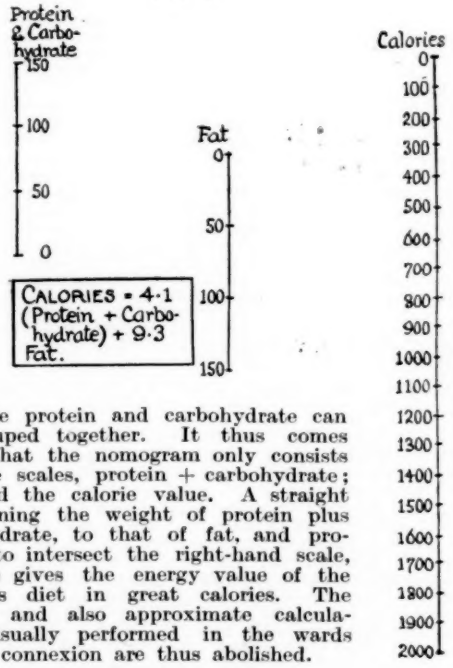
[1] THE LANCET, 1922, i., 273.

taken in. The line on the right-hand side gives the value of the R.Q. All one has to do is to take a straight ruler or thread, place one end over the number of c.cm. of CO_2 exhaled by the patient, join it to the c.cm. of O_2 inspired, and produce the line thus formed to the right-hand scale. The point of intersection with it immediately gives the required value of the R.Q. It will thus be seen that the matter is quite simple, once the scales have been accurately drawn. The chart may be conveniently pasted on cardboard, varnished, and hung up in the ward ready for instant use.

The Calorie Value of a Diet.

This is a rather more ambitious nomogram (Fig. 2), more factors being included, but it will be seen that if the scales are suitably drawn and adjusted, the matter is as simple as before. In theory we require a nomogram of the form $Q = aX + bY + cZ$. It is better adapted to our purpose to write $Q = pP + cC + fF$, where Q is the number of calories produced, P the weight in grammes of protein, C that of carbohydrate, and F that of fat. Each weight has now to be multiplied by the appropriate heat factor, $p = 4{\cdot}1$ for proteins, $c = 4{\cdot}1$ for carbohydrates, and $f = 9{\cdot}3$ for fats. Now this nomogram can be considerably simplified by the following considerations. The scales for the different food constituents can be each enlarged by 4·1 times, or 9·3 times the unit, as the case may be.

FIG. 2.



Also the protein and carbohydrate can be] grouped together. It thus comes about that the nomogram only consists of three scales, protein + carbohydrate; fat; and the calorie value. A straight line joining the weight of protein plus carbohydrate, to that of fat, and produced to intersect the right-hand scale, at once gives the energy value of the patient's diet in great calories. The tedious and also approximate calculations usually performed in the wards in this connexion are thus abolished.

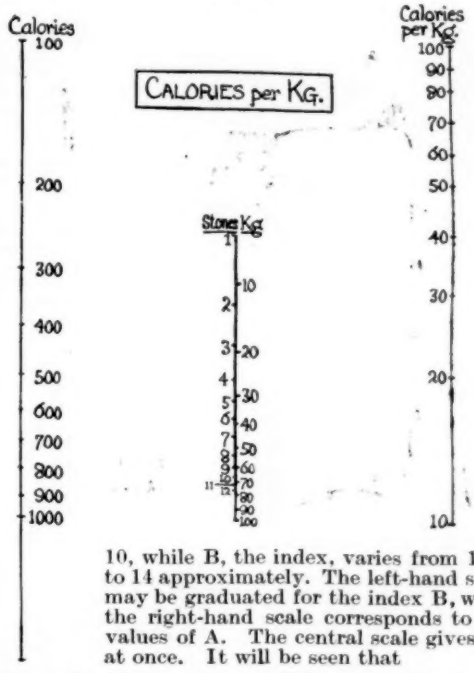
Calorie Value per Kilogramme.

In clinical work with diabetic patients it is necessary to know the calorie value of their diet per kg. of body-weight. For this purpose another nomogram has been designed (Fig. 3). The left-hand scale is total calorie value, the middle scale is body-weight, which may be in stones or in kg., and the right-hand scale gives the required calories per kg. It would be neater, perhaps, if this nomogram were combined with that of the calorie value of diets. There is no difficulty in so doing and a very comprehensive nomogram results. This means that, having determined by the ruler the total calorie value corresponding to the diet, we must look on the new scale for the same number denoting the value of the total calories. We then start a fresh line from this point, through the value of the body-weight of the patient, and produce it to cut the calorie-per-kg. line, thus giving the result required. As the weight of the patient is often measured in stones, it is convenient to graduate the weight scale in stones and in kg.

Hydrogen-Ion Concentration Values.

The formula for any hydrogen-ion concentration may be written $C_H = A\,10^{-B}$, where C_H is the concentration mentioned, A is a numeral between 0 and

FIG. 3.



10, while B, the index, varies from 1 up to 14 approximately. The left-hand scale may be graduated for the index B, while the right-hand scale corresponds to the values of A. The central scale gives pH at once. It will be seen that

$$pH = -\log C_H = -(\log A - B \log 10) = B - \log A.$$

Hence the nomogram is of the type $y = z - x$, showing that it can be plotted in the ordinary way—i.e., y as ordinate (giving pH), with x (i.e., log A) as abscissa, and z perpendicular to both. It is, of course, a plane. It is also clear that one might have put $y = 10^{-x}$ using semi-logarithm paper.[1] The above merely shows that it is just as readily adaptable to nomographic representation.

Percentages.

These may be easily determined nomographically. Such values are so often required in calculating statistics, and modifications can be made to suit any particular case.

What I have written probably suffices to show to what various cases the modern idea of nomographic representation may be put in the direction of physiological and medical science. There is no limit to the matter, beyond the fact that the quantities to be represented must be related to each other by some definite mathematical law. The great majority of such applications are fairly simple, the only difficulty being the setting out of scales, their distance apart, and their method of graduation. But such scales having once been made can be set up in block and reproduced indefinitely. The only real requisite is a straight ruler. The R.Q. chart, the total calorie value, and the calorie value per kg. charts are in constant use in the diabetic wards of the London Hospital. Copies of these nomograms may be obtained from Messrs. J. J. Griffin and Sons, Ltd., Kemble-street, Kingsway, London, W.C.

[1] Roaf: Jour. Physiol., 1921, vol. liv., proc. p. 17.

Clinical and Laboratory Notes.

A CASE OF EXOMPHALOS.

BY FRANK BLAKE, M.R.C.S. ENG.

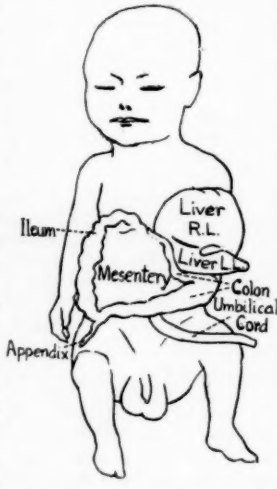
THE following case of exomphalos is recorded as being of interest:—

On June 24th, 1923, I was called to attend a primipara aged 31. I found that the membranes had ruptured prematurely, and that there was practically no dilatation of the os. The head was very high up, but able to pass the brim of the pelvis. By abdominal palpation I had already diagnosed a first vertex presentation.

FIG. 1.

I left the case until the next morning, when I found that almost no progress had been made, and that the pains were very badly borne. I administered small doses of morphine and hyoscine subcutaneously, and waited. Late in the evening I saw the patient again and found that progress towards dilatation was very slight. The temperature had risen to 100·2° F. and the pulse-rate to 104.

FIG. 2.



Much against my principles, I decided to dilate the cervix manually and apply forceps. The fœtal heart was heard. I administered chloroform and proceeded. After traction (with Nevill's axis-traction handle on forceps) for about one and a half hours I delivered a full-term, plump but dead child with exomphalos, an abnormality I have never seen before. There was a defect in the middle line of the body from the umbilicus to the sternum, and the liver, gall-bladder, jejunum, ileum, ascending and transverse colons were outside the body cavity and merely covered with amnion.

The mother made an uneventful recovery without running any temperature after the day of delivery. The placenta was normal and quickly followed the child. The accompanying snapshot (Fig. 1) gives some idea of the condition. The dark object on the infant's right is the liver. Fig. 2 is a diagrammatic representation.

I find in Tweedy and Wrench, and also in the "Ten Teachers," only a few lines on this condition.

East Harling, Attleborough, Norfolk.

A CASE OF OSTEO-ARTHRITIS IN CHILDHOOD.[1]

BY PHILIP WEATHERBE, M.B., CH.B. EDIN.,
SURGEON, HALIFAX CHILDREN'S HOSPITAL, NOVA SCOTIA.

Osteo-arthritis in childhood is of interest on account of its rarity and doubtful pathology. Deformity may be prevented by timely splinting of the affected joints in their most useful position, and the cause should be sought early and removed if possible. Such cases, if left to continue without treatment, become very grave.

A well-nourished girl, aged 4, was admitted to hospital with a chronic crippling deformity of the joints, having been bedridden since the deformity began at 18 months of age.

History.—The condition began gradually at 18 months of age by left elbow becoming tender and painful and the child restless and fretful. After the condition persisted for three weeks a physician saw the child for the first time and he thought an injury had occurred to the elbow, but after an X ray examination the diagnosis still remained doubtful. Shortly after this the knee-joints became swollen and painful, followed by the other joints of the limbs. There were exacerbations of pain and swelling in the joints from time to time flitting from one joint to the other. The knees were always the most markedly affected and the most painful. The pain was severe enough to waken the child nightly, causing it to cry. The pain at night was present to some extent on admission. This child is the youngest of a healthy family of 11, who was first breast-fed and then bottle-fed until 13 months of age. The parents are healthy farmers, free from tuberculous or specific disease.

Condition on Admission.—Absolute ankylosis of left elbow-joint. Left wrist-joint swollen and stiff and impossible to dorsiflex, but easily flexed with no tenderness or pain in these two joints. Both knees flexed beyond a right angle and ankylosed in this position with swelling and slight tenderness. Both ankle-joints swollen and stiff with very limited movement. Other joints normal. General health good except for a chronic constipation.

The child had always been constipated, taking a mixture of Epsom salts and soda for months before admission, and cascara and liquid paraffin after admission to hospital. The diet has been liberal and nutritious, and there was no other history of disease.

General examination was conducted with the object of trying to find some focus of infection. A blood culture was negative. The blood was normal, so were the urine and fæces. The chest and abdomen revealed nothing by physical examination. Constipation was marked and the tonsils were under suspicion. X ray examinations of the joints revealed nothing definitely abnormal.

Treatment.—Treatment was based upon the possibility of infection from the tonsils and auto-intoxication from the bowel. The tonsils were removed, and a buried abscess found in one. The constipation was overcome with medicine—cascara 1 drm., liquid paraffin 1 drm.—night and morning. The pain was relieved by sodium salicylate ionisation. The joints were limbered up with sodium chloride ionisation, radiant heat, and massage, and the deformity corrected by forcibly breaking down adhesions under general anæsthesia and fixing the knee-joints in the corrected position by means of plaster of Paris. This operation was repeated on three different occasions with intervals between for massage and passive movement. After six months' treatment the child was able to walk with straight limbs partially movable, and with the full use of the left arm. The cause in this case is considered a combined one, an infection from abscess in tonsil and auto-intoxication from the bowel.

The result in this case up to the present has been satisfactory, but, as in other deforming diseases treatment should be maintained for months or years to prevent recrudescence, especially regarding deformity.

[1] Exhibited before the Halifax Medical Society, in April, 1923.

VENEREAL DISEASE IN WESTERN AUSTRALIA.—In his report for the two years ending Dec. 31st, 1922, Dr. R. C. Everitt Atkinson, Commissioner of Public Health in Western Australia, states that the total number of new cases of venereal disease notified during the year 1921 was 1115, an increase of 132 upon the previous year. This increased incidence appears in the case of both sexes, 73 being males and 59 females; but whilst in the case of the former it represents an increase of only 8·4 per cent., in the case of the latter an increase of 50·8 per cent. is shown. The proportion of males to females affected was 5·3 to 1, as against 7·5 to 1 last year. It is probable, he points out, that this discrepancy represents, not an actual increase in the prevalence of venereal disease amongst the female population, but a greater willingness on the part of women to seek medical attention and an increasing knowledge of the subject and of the benefits to be derived from early recognition of the disease and early treatment of it. It is possible, he says, that the increase in tertiary cases is due directly to the more sensitive ice-box method of performing the Wassermann test having brought to light cases previously not diagnosed as syphilitic. Legal proceedings were taken against 24 persons consistently refusing to resume venereal treatment, 23 being males and one female. In ten cases a conviction was recorded. During 1922 the total number of new cases of venereal disease notified to the department was 727, which shows a reduction of 384 on the previous year. This reduction was evident in the case of both gonorrhœa and syphilis and in both sexes, and, provided it actually represents a diminished incidence, is extremely encouraging, justifying as it does the measures that have been adopted to cope with the problem of these diseases.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

INAUGURATION OF THE SECTION OF COMPARATIVE MEDICINE.

AT the first meeting of the new Section of Comparative Medicine on Oct. 24th Sir CLIFFORD ALLBUTT, President of the section, delivered the introductory address on the

INTEGRATION OF MEDICINE.

He said: If for years slowly and almost silently our work makes its way we must be content; our experience of the world teaches us to be content; but happily, now and then, after long hewing in the dark forest, we break into the light; we find ourselves almost suddenly upon a peak, our way open and bright before us, and our cause justified before man. Such a festival is our meeting to-day.

The barriers of convention, which ought to be slender and occasional, are of all the most inveterate and impregnable. Of such have been the barriers devised by mediæval perversities which, to its grievous injury, have split up medicine into fractions. As physic was divorced from surgery and mind from body, so the diseases of animals and plants were separated from those of mankind. The folly of the division of the medicine of the hand from the medicine of the bottle has now become so glaring that our next festival may be on the blowing up of this rampart; indeed, the gynæcologists have exploded their end of it already. But it is a big business to transform a mediæval castle, with its baileys, barbican, and keep, into a modern domain.

Let us rejoice then together that by the liberality, foresight, and generosity of the Royal Society of Medicine we are enabled to-day to celebrate the unity of medicine as a biological study. That you have made me your president on this memorable occasion, for in the history of medicine this day will take a memorable place, is a privilege for which I am deeply grateful to you. We have the mind of James Paget with us, and that of Sir John Bland-Sutton, happily still in the body, with us also. By him I have felt that this chair ought to have been occupied; for, while I have been talking about comparative pathology, he has been working in the field; but he has been called to a higher place, a distinction on which we all cordially congratulate him. For personal help in our campaign I should also like especially and gratefully to mention General Sir Frederick Smith, Prof. F. T. G. Hobday, Mr. W. M. Scott, of Bridgwater, and Prof. T. B. Wood, of Cambridge.

A Preliminary Survey.

I think you will agree with me that we must not swarm upon our new estate and try to do too much at first. If we do we may tire ourselves, overrun our work, and tread down our crops. Let us survey our ground carefully and make good by degrees. Many of our supporters are very busy men, and may be discouraged by too long papers or too many meetings; the secretaries will, I am sure, do their best to see that the papers laid before you are concise, relevant, and not too abundant.

Prof. W. H. Welch, of Baltimore, has written to me in these words: "Your first thoughts will be those of comparison"; to shed cross lights reciprocally from the pathology of one kind of living thing upon another, watching the variations of function in various biological systems. Consider, indeed, for a moment what, without the comparative method, would have now been the state of those other sciences which have worked by this method for many years past. Without the comparative method what of anatomy, or of anthropology, or of embryology; or what again of philology, of history, or even of theology? Without the method they would never have attained to the master conceptions which have lifted those studies from the plane of hobbies, or of literary amenities, or of mere erudition, to the rank of scientific ideas. Incidentally it is true that pathologists have already done much by their experimental researches—as into the properties of the cell, in the study of infections, and so forth—to gather in some comparative pathology, by parcels; but this is a straggling collection of knowledge; it gives us no general view of the whole, nor coördination of its parts.

Pathological Biology.

A certain portion of the time of this section will be devoted to the utilitarian side of our subject; to the study of the diseases common to man and animals—many of which may be carried by animals to man and conversely; to the ravages of disease in our herds and our crops; and, on the other hand, to the respective immunities and defences of plants and animals, as, for example, the immunity of the ox tribe to glanders, mentioned by Prof. Hobday at the Glasgow meeting of the British Medical Association, or again to our experience of anthrax serum; effective in man, in animals ineffectual, and again to the maintenance of the balances of species in the economy of nature. But, as I wrote in the *Times* in 1906 (June 5th), while not neglecting these instant needs we shall not permit our attention to be distracted from the pursuit of the larger and more disinterested researches; from a pathological biology which hereafter shall give us not only a control of several diseases, but an insight into large and fertile principles, foresights and controls over wide fields of nosology, interpretations of the various comings and goings of the manifold kinds of disease in all living things—plants and animals—of specific kinships underlying superficial differences, and of disorders of the more complex animals by the light of elementary changes in the simplest animals and in plants, in which the plasticity, I had almost said the pregnancy, of protoplasm shows us in manifold ways its marvellous endowments. We must have a keen eye to practice, whence, indeed, many of our most fertile problems arise, but we must aim also at the building up of the great principles upon which depends the practice of the future. I may recall the following reflection of the Agricultural Correspondent of the *Times* of 1906 (presumably Dr. Fream): "From a pathological point of view they (diseases of sheep) are a perfect mine of wealth, for they are fraught with scientific problems of the highest interest and importance, and are most suggestive of what may turn out to be a new light on the pathology of many of the contagious and infectious diseases of man and the lower animals." At this moment there appears in the Proceedings of the Royal Society (Ser. B, vol. xcv., p. 228, Sept. 1st, 1923) a very interesting study of that strange monstrosity achondroplasia. Few human achondroplastics manage to get born; of the few were a certain Egyptian god—who perhaps did not need a uterine phase—Æsop and Quilp. They are dwarfs with big heads and bodies, short arms and legs, and fin-like hands. Now Mr. Crew has illustrated the pathology of these monsters by certain monstrous calves of the Dexter breed, and postulates a perversion of the pituitary gland as the cause of the monstrosity. Moreover, he points out that this deformity may even shed some light upon the species problem.

I ought not to close an address, even so informal as this, without at least an allusion to the name of Pasteur, who threw open vast fields of comparative pathology; to mention the name of that great master is sufficient to turn your hearts silently to the centenary commemoration of that great man. I will conclude these remarks with the following quotation from another master of medicine, John Hunter: "In the course of a variety of experiments on animals and vegetables I have frequently observed that the results of experiments in the one have explained the

economy of the other, and pointed out some principle common to both."

I now ask you to join me in wishing long life and prosperity to our new section. In Benjamin Franklin's now proverbial phrase, "Hard work is still the road to prosperity, and there is no other."

Cryptorchidism in Animals.

Prof. F. HOBDAY said he had chosen the subject of cryptorchidism partly because it was at least as common in domesticated animals as in man, and partly on account of his 30 years of experience in operating for this condition in animals. Human and veterinary surgeons, however, regarded this abnormality from different angles; the operative aim of the veterinary surgeon was to remove the hidden testicle in order to render the animal more docile and to do away with unpleasant characteristics of the uncastrated male. In animals the tendency to cryptorchidism was undoubtedly hereditary. This was well recognised by breeders as well as by veterinarians; the fault might even be transmitted to the second generation through a female. In addition to cryptorchidism, genuine cases of anorchidism and of monorchidism occurred in animals. Failure of the testis to descend might be due to abnormally short or abnormally long peritoneal attachments, to the unusual size of the testis or epididymis, which prevented its passage through the inguinal canal, or the canal itself might be narrower than normal. Finally, the gubernaculum testis might be paralysed or the skin of the scrotum so tight that when the testis had descended through the inguinal canal the organ was forced into an abnormal position under the skin of the prepuce, the abdomen, or the thigh.

In veterinary practice it was well established that when both testes were retained within the abdomen the animal was sterile, although spermatozoa were occasionally seen on microscopical examination. Sir John Bland-Sutton stated that after careful observations for many years of abdominal retention of the testes in man, he had only once found spermatozoa. In the horse in particular it was always advisable to convert the cryptorchid into a gelding on account of the treacherous disposition of these animals. Prof. Hobday gave an illustrated description of the actual procedure adopted which varied according to whether the testis lay in the inguinal canal or within the abdomen. In the latter case the abdomen itself was opened, the testis found and withdrawn by the hand. As the epididymis might be separated from the body of the testis by some distance, it was important to see that the former was not mistaken for the whole organ. In animals, and in the horse in particular, there was a wide range of abnormalities of the retained testis, ranging in size from that of a Rugby football to that of a walnut, and containing worms, cartilage, bones, and teeth and various kinds of tumour tissue. One case had been recorded in which the testis weighed 100 lb. A number of photographs of such abnormalities was exhibited by the epidiascope, illustrating the types commonly found in the horse, "dentigerous" and dermoid cysts containing hair being the most common. Very large cysts had to be ruptured before the testicle could be withdrawn from the abdomen. Other kinds of tumour tissue found were sarcoma, embryoma, fibroma, and lipoma; the latter was unknown in human testicular tumours, and the first of the kind reported. A specimen was also shown of a cyst of the testicle containing a worm (the *Strongylus edentatus*); a corresponding condition in man was the occurrence of living acari, *Histiogaster spermatagus*, in a cyst of the testicle. In other domesticated animals, except perhaps the dog, cryptorchidism was uncommon. A specimen of torsion of the retained testicle of the dog was exhibited. Prof. Hobday concluded by drawing attention to the fact that while testicular tumours and particularly dermoids were common in colts, he had never seen a dermoid cyst of the mare's ovary, and by emphasising the hereditary nature of cryptorchidism in animals. In both these respects animals differed from man.

Cryptorchidism in Man.

Mr. W. MCADAM ECCLES, who discussed abdominal retention of the testis in man, dealt first with the ætiology of the condition, and suggested that the failure of both testes to migrate from the abdomen might be due to some error in the endocrine system following from the imperfection of the testes themselves. When only one testis had failed to migrate the problem was difficult and he could offer no solution. In man there was little evidence of any hereditary predisposition; he had carefully inquired in all cases and only 2 per cent. of cases gave a history of a similar condition in grandfather, father, or brothers. As regards function, it was questionable whether an imperfectly descended testis was ever fully developed (it was incorrect to describe it as atrophied). In man there was a greater likelihood of spermatogenesis in the abdominal testis than in the testicle retained in the inguinal canal; instances of procreation by men with double abdominal testes were fairly common, but it was rare to find parentage permitted to men with double inguinal arrest. The internal secretion of the abdominal testis appeared to be preserved in some degree, although perhaps not fully.

A testis within the abdomen of man was liable to the same diseases as was the fully migrated organ. Gonorrhœal epididymitis might occur and be easily mistaken for appendicitis. Cysts of the testis proper were rare; simple cysts of the epididymis had been described. It was doubtful whether testicular tumours, almost always highly malignant, such as malignant teratoma, carcinoma, sarcoma, and chorion-epithelioma, were any commoner in the retained testis. As regards treatment, the only condition which called for interference was inflammation of an abdominal testis, when the organ should be promptly removed. To replace an abdominal testicle in the scrotum was impossible, and its removal involved a loss of the internal secretion.

Sir JOHN BLAND-SUTTON referred to the attention that had been devoted to this subject both in man and animals since the days of Hunter, who first traced the gubernaculum by dissection and suggested that malposition of the testis was due to imperfection of the gubernaculum. The frequency of unilateral retention of the testis disposed at once of the hormone theory. He suggested that cryptorchidism might be in some way associated with an imperfection of the curious readjustment of the peritoneum which occurred during later fœtal life. The dermoid tumours of the testis so common in the horse arose, as Verneuil had pointed out, not from true testicular substance but from the paradidymis. It was strange that they should be so common in the retained testis of the horse, while in man but 13 dermoids of the testis were recorded in the literature and only one of these was in a retained testis. He suggested that the tissue lying between the testis proper and the epididymis of the fœtal horse might form a fruitful field for further investigation.

In answer to questions, Prof. HOBDAY re-stated his belief in the hereditary nature of cryptorchidism in the horse. In one particular district where a "rigg" had been used at stud, he was called upon to operate on 10 or 12 horses every year for cryptorchidism.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

Exhibition of Cases and Specimens.

THE annual meeting of this section was held on Oct. 26th, with Mr. ANGLIN WHITELOCKE, the President, in the chair.

Mr. P. LOCKHART-MUMMERY showed a case of hemi-hypertrophy traced for 18½ years. The patient was first exhibited before the section in January, 1906.[1] It was shown in collaboration with the late George

[1] Proceedings, 1906, vi., 153.

Carpenter. The child was then 2½ years old, and the left side of his body and head was growing faster than the right side. He was originally brought to hospital because he was walking lame. There was nothing else wrong with the child; the mental condition was normal, and no abnormalities were detectable in the nervous system. The difference in length of the lower limbs was half an inch. The child was again exhibited at the Society in January, 1908. He was now very lame, and there was 3½ in. difference between the length of the legs. X ray photographs showed the epiphysis to be more advanced on the left side than on the right side. The child appeared to be two years older on the left side than on the right side, and the left side of the tongue, the left eye and ear were all larger than the right. The patient was now shown at the age of 21. There was now only half an inch of difference between the two sides, and it was obvious that the small side was now catching up with the big side. Except on close observation no difference between the two sides of the face or tongue could be detected. As far as the speaker was aware this was the only case that had been traced to adult life.

Dr. F. J. POYNTON showed two cases—one of unilateral and one of bilateral congenital dilatation of the ureters. In the former the diagnosis was confirmed by a post-mortem examination. The diagnosis was made in life by the aid of a cystoscopic examination and by the X rays after injecting 20 per cent. sodium bromide into the bladder and ureters. In both cases there was a gross infection of the urinary tract. The question of the causation of the dilatation was discussed and the majority of those present seemed to favour the presence of a spasm of the urethra.—Dr. DINGWALL FORDYCE suggested the possibility of this spasm being analogous to that of pyloric stenosis. He thought it doubly interesting because the elder of the two children and the one in which the condition was bilateral was a girl.—Mr. MAX PAGE suggested that if this condition was analogous to pyloric stenosis, it might be treated upon the same lines by section of the sphincter.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

A MEETING of this Society was held in Manchester on Oct. 19th, the President, Prof. BLAIR BELL, being in the chair.

Dr. D. DOUGAL (Manchester) read a paper on the

Operative Treatment of Incontinence of Urine in Nulliparæ.

He said that the degree of control has been expressed by Taylor and Watt as (1) normal; (2) fair, which is normal except on special occasions, as, for example, over-distension of the bladder, temporary vesical irritability, or times of mental or physical fatigue; (3) poor, which allows the urine to escape on any special abdominal strain, such as may be caused, for example, by coughing or active exercise, such patients being wet most of the time; (4) lost, when urine continually dribbles from the patient and very little is retained in the bladder. Taking the "poor" and "lost" groups only, the figures showed that about 8 per cent. nulliparous women suffer from disagreeable amount of urinary incontinence (Taylor and Watt). In this paper Dr. Dougal proposed to deal only with those cases of active incontinence of urine which are due to weakness of the vesical sphincter. He said that the sphincter apparatus of the bladder consisted of three parts: (i.) Intrinsic sphincter, which is merely a specialised portion of the middle stratum of bladder musculature. Its presence is even denied by some authorities. (ii.) Extrinsic or urethral sphincter composed of fibres of compressor urethræ forms a complete ring round the upper part of the urethra. All authorities are agreed that this is the most important factor in sphincter apparatus. (iii.) The supporting fibro-muscular tissues lying between base of bladder and the anterior vaginal wall. It is made up of paravesical vascular sheaths and their connexions, and is strongly developed towards each side, where it is closely related in front to the anterior layers of the levator ani and behind to the parametric tissue. He considered that the sphincters are the most important factors and, in support of this contention, he cited the fact that incontinence of urine is not commonly met with in cases of prolapse, even when the anterior vaginal wall, and presumably the supporting structures of the bladder, are much weakened and displaced. He described the more important operations for the cure of this condition illustrated by lantern slides. The operation he performed on his successful cases was as follows:—

The perineum was first incised to allow of easier access to the parts. A triangular area of the anterior vaginal wall was then removed, exposing the urethra and bladder. A mushroom catheter was then passed into the bladder, and using this as a guide two mattress sutures of catgut were inserted into the tissues on each side of the bladder neck (after Kelly). Deep sutures were then inserted through the para-urethral tissues to narrow the canal throughout its length, and the anterior colporrhaphy then completed in two layers. Finally the perineal incision was sutured.

He added notes on two cases.

1. This patient was an unmarried woman, aged 26 years. Menstrual history normal, thin, poorly nourished, very little energy, and very depressed and miserable. Had suffered from urinary incontinence practically since birth, worse at night. All sorts of medical treatment tried. The external genitals were normal and of virginal type. The vaginal orifice admitted one finger with difficulty, but the upper part of the anterior vaginal wall appeared somewhat lax, although there was no actual prolapse. The uterus was normal in size and acutely anteflexed. After the operation, as above, she needed catheterisation for a week. Her bed was wet once before discharge from hospital. She had been well ever since—for two and a half years—and was now cheerful and healthy.

2. This patient was also unmarried, aged 21 years. Menstrual history normal, rather thin and miserable, and not very bright mentally. She was perfectly normal till an acute illness ten years ago, but since then had been incontinent, chiefly at night, but also during the day. For the last six years had not had a holiday owing to bed-wetting. External genitals normal, vaginal orifice virginal, and again a considerable laxity of upper part of the anterior vaginal wall was found. The uterus was normal in size and acutely anteflexed. It was over six months now since the operation and she had wetted her bed twice, but she had now been away for a holiday and was much better in every way.

The great majority of these cases of incontinence could be cured or, at any rate, much relieved by operative treatment. There was no doubt that many young single women are allowed to go on suffering from this distressing ailment because no obvious lesion could be made out, and the disability was attributed to neurosis. There is a neurotic element, no doubt, in some cases, but the real underlying cause would be found in a weakness of the sphincter mechanism, which could often be dealt with successfully by surgical methods.

Discussion.

In the discussion which followed, Dr. MILES PHILLIPS said he thought that incontinence of urine was a common feature of partial vaginal prolapse in multiparæ.—The PRESIDENT expressed surprise at the high figure (8 per cent.) of incontinence in nulliparæ. He did not believe that incontinence was due to neurosis. There was not a single structure in the apparatus which could be said to constitute a true sphincter.—Prof. W. E. FOTHERGILL said he had done Pawlik's operation a few times with success. He questioned that incontinence of urine was common in cases of vaginal prolapse in multiparæ. He thought that the operative measures taken were a suggestive treatment.—Dr. H. LEITH MURRAY said that the fact that the incontinence was worse at night pointed to a neurotic element rather than to the dislocation theory.

Specimens were exhibited by Dr. J. H. WILLETT, Dr. LEITH MURRAY, and Dr. J. E. GEMMELL.

Reviews and Notices of Books.

THE BLOOD-SUGAR IN MAN.

Investigations on the Blood-Sugar in Man. Conditions of Oscillation, Rise, and Distribution. By KAREN MARIE HANSEN. Copenhagen: Nielsen and Lydiche (Axel Simmelkiaer). Obtainable from H. K. Lewis and Co., Ltd., London. 1923. Pp. 224. 10*s*.

THIS monograph was written for the degree of Doctor of Medicine in the University of Copenhagen, and gives the results of an enormous amount of research work which was done in the clinic of Prof. Kund Faber. Whereas most workers are content to estimate the blood-sugar every 15 or 30 minutes after a dose of sugar, Dr. Hansen has estimated it as often as she could find time to collect a sample of blood—i.e., every two to three minutes—and the results are plotted in the form of a curve. An elaborate series of controls was made, and the author believes that the Hagedorn and Jensen method for estimating the blood-sugar is accurate to 0·005 g. per cent.

It was found that the blood-sugar of a fasting healthy person was not constant but might vary from 0·085 per cent to 0·105 per cent. in a series of irregular oscillations. These oscillations were not present when the blood-sugar was increasing after a dose of sugar, but appeared if a plateau was formed. They disappeared when the blood-sugar was falling, to reappear as soon as it had fallen to somewhere near its original level. These results were obtained as a control for similar but more pronounced oscillations which occurred among the numerous diabetic patients who were examined. The curve showing the gradual fall of the blood-sugar of a diabetic patient during a fast is very striking. Elaborate curves were obtained from healthy persons showing the effect of increasing doses of sugar. A series of diabetic patients was also examined after doses of sugar before and after treatment. An attempt was made to see whether the sugar tolerance of the patient had changed as the outcome of treatment. The results seem to show that although the fasting value of the blood-sugar might fall to normal under treatment, there was but little evidence of a recovery of tolerance. It must be pointed out, however, that the amount of carbohydrate in the patient's diet would hardly give the patient much chance of a recovery of sugar tolerance. The partition of sugar between the plasma and corpuscles was also investigated. In health it was found that the sugar was almost equally shared between them. In patients with severe diabetes, however, the plasma contained more sugar than the corpuscles. Under treatment there was an approach to the normal condition.

The monograph is written in fair English. For all workers on sugar tolerance it will be of great assistance, both for the references to other work and for the numerous experiments described.

SURGERY OF THE SPINE AND EXTREMITIES.

By R. TUNSTALL TAYLOR, M.D., Professor of Orthopædic Surgery, University of Maryland, and College of Physicians and Surgeons. London: Stanley Phillips; Philadelphia: P. Blakiston, Son and Co. 1923. With 604 illustrations. Pp. 550 + x. $7.50.

Dr. Tunstall Taylor is well-known as an orthopædic surgeon, and we welcome this expression of his matured experience in the treatment of deformity. Although the term is not included in the title, the opening chapter begins with an attempt, in which the author is not more successful than his predecessors, to define orthopædic surgery. In this connexion we would remark that the genitive of παῖς is not παιδὶς, and that we find no such word as "fenestrum" in our Latin dictionary. But we note that Dr. Taylor has abandoned the usual American "orthopedic" for the more correct spelling. The historical notes are of some interest and well illustrated, but scant justice is done in them to the part taken by English surgeons in the development of orthopædic surgery. It is, moreover, strange that the only name mentioned in connexion with the Balkan Frame is that of an American who did not serve in the Balkans and had consequently nothing to do with the original invention, however successfully he may have applied it in France. The descriptions of apparatus and of the technique of its preparation and application are likely to prove useful, as also is the chapter on surgical mensuration, although we think that elaborate instruments are out of place where the data—i.e., the bony points and axes—are so ill-defined as they must necessarily be in the living body. In the chapter on tuberculous diseases of the spine, treatment by means of the Taylor brace and other methods are adequately described, but heliotherapy and open-air treatment are only alluded to. Scoliosis is adequately dealt with. The chapters on diseases of the joints of the limbs, and of congenital dislocation of the hip present a good account of the usual American practice in the treatment of these conditions, but call for no particular notice. Infantile paralysis is discussed less fully than one expects in a text-book coming from America, where epidemics of that malady have been so extensive. The chapter on the deformities of the foot is disappointing. For instance, in the section concerning talipes calcaneus no clear distinction is drawn between the relative prognostic importance of the congenital and paralytic cases of this deformity, and operations for the relief of the latter are most inadequately described. The chapter on reconstructive surgery of the hand and the details given of the technique of tenoplasty are likely to be very useful. The illustrations are many and good and the work may be recommended as a text-book of the subjects included under its title.

TREATMENT BY ARTIFICIAL PNEUMOTHORAX.

La pratique du pneumothorax thérapeutique. Second edition. By F. DUMAREST and P. BRETTE. Paris: Masson et Cie. 1923. Pp. 356.

SINCE the first edition of this work was published, certain important advances have been made in our knowledge of treatment by artificial pneumothorax, and the graduation of the intrapleural pressure to suit the needs of the individual case has of late received much more attention than it did. The general tendency is to use lower pressures. Another recent advance, to which these two authors have contributed not a little, is the distinction between the various kinds of pleural effusion, from the simple traumatic effusion at the one extreme, to the virulent tuberculous effusion at the other. With an experience of 15 years and between 200 and 300 cases, the authors are in a position to speak with authority, and it is interesting to note that in their selection of cases for this treatment they have learnt to be guided rather by the clinical course of a case than by the structural changes indicated by a physical examination. Such an examination may show but slight changes in the lungs. Yet the disease may be of a rapidly progressive character, and the patient acutely in need of that immobilisation which only lung collapse treatment can effect.

The authors refer in their introduction to the fact that in France, at any rate, opposition to this treatment has practically died down, its many permanent successes having given the lie to the objection that it was only palliative, scoring successes of a merely temporary character. The authors have obtained favourable results in 52 per cent., and after an observation period of more than ten years they were still able to claim favourable results in 23 per cent. They refer among other matters to the treatment, during and after pregnancy, of tuberculous women by a pneumothorax. While in Germany it is usual to induce abortion early in pregnancy when a woman is suffering from active tuberculosis, this procedure has found little favour in France where the more conservative measure of inducing a pneumothorax

has frequently enabled the patient to go to term, giving birth to a healthy infant without suffering from an exacerbation of the disease. In their account of the technique of the operation, the authors reproduce numerous illustrations of the various pumps and needles in use. There seem to be almost as many different pumps and needles as there are physicians practising this treatment, but a close scrutiny of all this apparatus arouses the suspicion that the differences begin and end with the physicians' names. There is, however, a remarkably ingenious portable apparatus, associated with the name of A. Jousset, which looks as if the whole bag of tricks could be accommodated in a poacher's pocket. With regard to the old controversy as to sudden deaths being caused by gas embolism or pleural reflex, the authors are inclined to hold each of these causes responsible for a certain proportion of the tragedies of this treatment. But when they suggest that the accidents traced to pleural reflex are comparable with those of serotherapy, they fail to make their reasoning quite plain.

This book does not profess to be an exhaustive treatise on the subject, but embodying as it does the personal experiences of two physicians with a long and intimate knowledge of this treatment and of the recent literature, the book is of considerable value.

PSYCHOTHERAPY.

Revised edition. By JAMES J. WALSH, M.D., Ph.D., Sc.D., Extension Professor, Fordham University. London and New York: D. Appleton and Co. 1923. Pp. 846. 30*s*.

Dr. Walsh opens with an interesting study of the history of mental healing and then passes to consider the body and mind in a manner which can be illustrated by the statement that "The will fails to reach the proper insulating plug of a neuroglia cell, which, if acted upon, would put a cell or group of cells in communication with others" (p. 128). Over 300 pages are given to the study of common ailments met with in general practice; here are considered digestive disturbances, cardiac disabilities both organic and functional, respiratory diseases (concerning which the neglected relation between asthma and pathological fears is demonstrated), the "rheumatisms," genito-urinary diseases, skin diseases, diabetes and exophthalmic goitre, and organic nervous disease. The general indications for psychotherapy are useful, but the author's ideas of therapy are disappointing. Suggestion, whether by newspapers, medical men, or relatives, is the beginning and end of his psychopathology; and his therapeutic directions are tedious in their repetitions. The need for reassurance, absence of worry, occupation of mind, neutralisation of unfavourable suggestions, self discipline and control of the mental attitude and of the nervous system are insisted on, and abundant platitudes leave the reader where he began.

It is in regard to purely mental troubles that we realise the emptiness of a therapy that takes no count of unconscious processes. Dr. Walsh quotes the case of an author suffering from claustrophobia: "He was returning from a vacation and was in the best of health and spirits, yet suddenly the feeling of inordinate dread that he was shut in came over him and he could scarcely control himself or keep from plunging out of the window in order to get into the open. . . . Unable to control himself any longer he got up and told me hoarsely that he was going to jump out of the train. . . . Happily the railway station was soon reached, when he rushed from the train and into the fields" (p. 617). The practitioner faced with the problem of treating such patients will gain little help from the advice that "Gradually, quietly, persistently, they must resist the dreads that come over them, must deliberately, without excitement, do the opposite to that suggested by their apprehension, until habits are formed that enable them to accomplish without discomfort what was before a source of serious ill-feeling" (p. 620). Keep your head above water and you will never drown. The handling of the defective child has no difficulties for our author. "The defective child must be made to realise that certain actions will surely be followed by painful punishment" (p. 742), and he demonstrates that the "subrational" needs more punishment than the rational. He seems to regret the decay of the practice of whipping hysterical patients (p. 805), and notes that the French military authorities revived this therapeutic measure in *torpillage* or the application of strong faradic currents. He concludes that "*Torpillage* . . . . is by its success the open sesame to proper understanding of the nature and therapeutics of hysteria." Dr. Walsh's book is not to be regarded as an exposition of modern American methods of psychotherapy.

MORAL PROBLEMS IN HOSPITAL PRACTICE.

By the Rev. PATRICK A. FINNEY, C.M., University of Dallas. London and St. Louis, Mo.: B. Herder Book Co. 1922. Pp. 208. 6*s*.

THIS is a work upon pastoral medicine written from a definitely Roman Catholic standpoint; that is to say, that the rules laid down for the conduct of medical men under certain conditions are those prescribed by Roman Catholic theologians. It is no part of our duty to comment upon such rules, and we refrain from so doing all the more in that we see that upon one matter at least—namely, the production of abortion in an incarcerated pregnant uterus—the Rev. Patrick Finney (p. 63) is in direct conflict with Dr. Capellmann, who lays it down in his work, "Medicina Pastoralis," p. 15,[1] that such procedure is indirect abortion and therefore lawful. But for those who feel bound by the regulations laid down by the Roman Catholic Church in such matters as abortion, sterilisation, craniotomy, ectopic gestation and the like, the book will be found valuable. It is clearly written under the form of questions and answers, which are given baldly in Part I., while in Part II. the questions and answers are repeated with a discussion and statement of the principles and reasons upon which the answers are based. Further, the book has a satisfactory index, glossary, and bibliography.

MANUAL AND ATLAS OF OTOLOGY.

Lehrbuch und Atlas der Ohrenheilkunde. Fourth edition. By Prof. Dr. GUSTAV BRÜHL. Lehmann's Medical Hand-Atlases, Vol. XXIV. Munich: J. F. Lehmann. 1923. Pp. 487. 14*s*.

THIS bulky volume is printed in small type and, suffering somewhat from over-condensation, makes heavy reading. Condensation was, however, necessary if the book was to be kept within a reasonable compass, and perusal is well worth the effort it demands, for the book contains a very thorough and complete description of modern otological knowledge. The work begins with a full account of the anatomy of the ear, macroscopical and microscopical, and is provided with abundant illustrations; the physiology is treated comparatively shortly, Helmholtz's theory of audition is accepted in its entirety, and neither Gray's modification nor Wrightson's alternative theory is mentioned. The next section deals with methods of examination, and here the testing of the labyrinthine functions are well described. A chapter on general symptomatology and therapeutics is followed by a systematic discussion of the pathology and treatment of diseases of the ear under the headings of outer and middle and internal ears. Malformations, injuries, and tumours are described subsequently in separate chapters, instead of among the diseases of the several parts of the ear; this arrangement leads to some confusion and overlapping, and it is not easy to see why it was adopted. There are also chapters on deaf-mutism and neuroses, and finally discussions of the social aspects of ear disease, in its bearings on military service, life insurance, and workmen's compensation. A very

[1] G. Capellmann: Medicina Pastoralis, Aquisgrani, MDCCCXC.

complete table of contents compensates partially for an inadequate index. The illustrations are excellent, more particularly those in colour, which are a prominent feature of the book.

THE DIAGNOSIS AND TREATMENT OF HEART DISEASE. Fifth edition. By E. M. BROCKBANK, M.D. Manch., F.R.C.P., Hon. Physician, Royal Infirmary, Manchester; Lecturer in Clinical Medicine, University of Manchester. London: H. K. Lewis and Co., Ltd. 1923. Pp. 232. 6s. 6d.

IN this, the fifth, edition of Dr. Brockbank's well-known handbook the chapters on clinical examination have been rearranged and extended. Several chapters have been added on the treatment of the common forms of illness in which the heart is affected. A chapter containing hints on the way to examine proposers for life insurance and on the interpretation of certain abnormalities in the circulatory system will be found especially useful in view of the author's long experience. We note that in Dr. Brockbank's opinion a stethoscope made of light wood, such as sycamore wood, gives the most delicate results in ausculation, but he admits that the binaural variety is often more convenient. The section of the volume dealing with heart sounds and murmurs is especially clear. For the rest, the popularity of previous editions of this little book among students and practitioners is likely to be maintained.

WHAT TO EAT IN HEALTH AND DISEASE. By BENJAMIN HARROW, Ph.D., Associate in Physiological Chemistry, College of Physicians and Surgeons, Columbia University. London: George Routledge and Sons. 1923. Pp. 203. 8s. 6d.

FEW branches of physiological knowledge have such an attraction for the layman as the subject of diet. Until quite recently, however, few if any reliable books have come forward to supply this demand for knowledge, and the subject of diet became a happy hunting ground for all varieties of cranks and quacks. It is different to-day, for now there is an almost bewildering profusion of popular books in which the layman can put complete confidence. The volume before us fulfils the necessary requirements of being simply written, accurate, and interesting. The placing of the chapter on the physiology of digestion at the end, instead of at the beginning of the book is an arrangement the desirability of which might reasonably be questioned, but the author draws attention to this by suggesting that some readers may prefer to read the last chapter first.

The book is intended as a guide for those who wish to know what to eat and why to eat it. But it is not merely this—it is also a reasonably complete account of the subject from the standpoint of the most recent work, including the experience gained by the study of war and post-war food conditions in Europe. Thus, the Pirquet system in which the nutritional value of the diet is measured in the new unit, the "nem" (1 c.cm. of milk = 1 nem), is discussed. The author has apparently a very decided leaning towards a reduction of the amount of meat in the diet, if not to frank vegetarianism.

DENTAL SURGERY AND PATHOLOGY. Fifth edition. By J. F. COLYER, K.B.E., F.R.C.S., L.D.S., Consulting Dental Surgeon to Charing Cross Hospital. London: Longmans, Green and Co. 1923. Pp. 931. 32s.

THIS well-known text-book has held an almost unchallenged position in dental literature for many years. Numerous generations of students have been nurtured on it and to an unusual degree the views of its author are reflected in the teaching and practice of dentistry in this country. There are many excellent reasons for its vogue. It is clearly and concisely written, and the illustrations are ample and instructive. There is throughout a sound insistence on pathology. It embodies a great deal of original work. The teaching is dogmatic, yet there is a recognition that dogma is not always adequate, and that there may be another side to the matter under discussion. Perhaps the greatest merit of the book is the constant insistence that dentistry is a branch of general medicine and cannot be considered as a matter of teeth alone.

The general arrangement of the book follows that of previous editions. There are, however, certain changes. The description of operative procedure has been considerably curtailed. This is an undoubted improvement. Dentistry has grown so rapidly that one book is no longer adequate to cover fully the whole of dental surgery. The section on orthodontic technique is hardly a sufficient account of modern orthodontic methods. The chapters on malocclusion and their ætiology represent much original work and thought, though in many respects they run counter to current teaching.

The chapter on dental caries is a little disappointing. It is so good that we feel it ought to be still better. Reading it the student would gain the view that the ætiology and pathology of dental caries form practically a closed book. Perhaps the author thinks thus, but there are many observers who consider that there are yet chapters waiting to be written, and that we have much to learn about the pathology of dental caries. In the chapter on tumours of the jaw, a distinction is drawn between the myeloid epulis and the myeloma. According to M. J. Stewart,[1] there is no real difference between the two tumours which are equally examples of the myeloid sarcoma. There is a useful chapter on Local Anæsthesia by F. J. Steadman, and an instructive account of radiographic changes in chronic infection of the jaws by Stanley Colyer.

The popularity of this well-known book will be assured by the new edition.

THE ACTION OF ALCOHOL IN MAN. By E. H. STARLING. With Essays by R. HUTCHISON, Sir FREDERICK W. MOTT, and RAYMOND PEARL. London: Longmans, Green and Co. 1923. Pp. 291. 12s. 6d.

Prof. Starling believes that if the abolition of all alcoholic beverages were enforced in this country against the wishes and convictions of a large proportion of the members of the community it would be little short of a calamity. Not only would it "not result in the long run in the improvement of national health and efficiency," but it would also "diminish that respect for the law, and that identification of self with the law which are essential for the stability and welfare of a democracy." Alcohol, an invention which he regards as probably synchronous with the birth of civilisation, has, in Prof. Starling's opinion, its chief value in "promoting repose and in affording a respite from the continual effort at adaptation to environment, and from the perpetual necessity of reconciling our personal advantage with the requirements of the society in which we live."

The book consists of 13 chapters by himself, in which he deals, in language addressed largely to the layman, with the fate of alcohol in the body, its action as a food, and its influence upon fatigue, digestion, circulation, respiration, and regulation of body temperature; with its action upon human behaviour and its influence on the community; with the effects of its "immoderate use," and with his conclusions drawn from the numerous experiments quoted. He is unable to find any evidence for the view so often expressed that the moderate use of alcoholic beverages is, in itself, harmful, and leads in the long run to the deterioration of health and of morality, but admits that its excessive use is the cause of a large amount of disease, crime, misery, and inefficiency. The worker will find that 12 c.cm. of alcohol contained in a glass of beer or a wine-glass of claret taken with lunch "will not interfere with the carrying out of his

[1] THE LANCET, Nov. 25th, 1922.

afternoon's work." The 35 c.cm. of absolute alcohol contained in half a bottle of light wine (claret or hock), in a pint and a half of ale, in 3 oz. of whisky (30 under proof), or in a quarter of a bottle of port, will undergo complete oxidation in the body within three and a half to five hours, so that if this amount is taken with the evening meal the alcohol will have disappeared from the blood and body tissues many hours before it is necessary to get up in the morning and begin the day's work. These quantities, consumed daily, will, in Prof. Starling's opinion, not interfere throughout adult life with bodily health and efficiency, whilst sufficing to produce the benefits and the increased pleasure in life which are the objects of the enjoyment of alcoholic beverages.

Dr. Robert Hutchison deals with alcohol as a medicine, in its aspects of a food in disease, an aid to digestion (e.g., in atonic dyspepsia), a tonic for "run-down" patients, a drug in disorders of the circulation and heart, and a sedative and hypnotic. Sir Frederick Mott treats of alcohol and its relations to problems in mental disorders, and characterises as misleading the statement, made by an extreme section of the temperance party, that 20 per cent. of admissions to asylums are directly or indirectly due to alcohol. Prof. Raymond Pearl's contribution relates to alcohol and mortality. He draws from a profusion of statistics the following conclusion:—The weight of evidence indicates that the consumption of alcoholic beverages "up to an amount and frequency which in common parlance is called moderate (the precise measure of this amount and frequency probably varying to some extent with each individual) does not sensibly shorten the mean duration of life or increase the rate of mortality, as compared with that enjoyed by total abstainers from alcohol."

Nowhere in the book is there any attempt to balance the cheerfulness and sociability engendered by the week's beer against the desirability of, say, the repair of a child's boots.

SCIENCE AND CIVILISATION.

Essays arranged and edited by F. S. MARVIN. The Unity Series, Vol. VI. Oxford University Press. 1923. Pp. 350. 12*s.* 6*d.*

"SUMMER schools" are of comparatively recent growth. Mr. Marvin started the first of these "Unity History Schools" in 1915, in the congenial atmosphere of the Friends' Settlement at Woodbrooke, when papers and discussions centred round the unity of western civilisation. The seventh, dealing with art and civilisation, was held this year in Vienna. The present volume is a record of the more permanent parts of the sixth conference, and contains a dozen essays grouped round the central theme. As might be expected from anything arranged by the author of "The Living Past," the note through the whole series is the continuousness of human experience and progress. The past is not an archæological curiosity but an integral part of the present, because the present is its derivative. And through this volume, as through its predecessors, runs another character which has commended them to so many diverse readers—the note of cheerful hopefulness for the future. If, for example, Greek mathematics have done so much for us in the past 2000 years, may not their products reasonably be expected to do as much again for us in the future? The argument throughout is that the past is alive, and may be presumed to be going to propagate itself in the future. It is impossible to deal with the essays individually. Those on "Ancient Medicine," by Dr. Charles Singer, and on "Science and Health," by Dr. F. G. Crookshank, are of more immediate professional interest, and it is a sign of the times that the grandson of Thomas Henry Huxley contributes one on "Science and Religion." Dr. Crookshank's discourse is particularly worth attention, and medical men would do well to respond to his invitation to think seriously as to what they really mean by a "disease." But the volume should be read as a whole. It will prove a most useful purge to those who see in "science and civilisation" nothing but the progress of our materialistic control over nature.

JOURNALS.

JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE. In the last issue Surg.-Commander J. H. Fergusson states that sulfarsenol, introduced by Surg.-Commander Laurence Kilroy[1] to the Mediterranean Station, has been there under trial for two years, and is strongly approved because it can be given, with ease and safety and painlessly, by subcutaneous injection, therefore anywhere and immediately, so that treatment can be commenced the moment the sore is seen, before the infection is generalised, and the Wassermann becomes positive. Besides, it produces results at least as good as any other drug. Hundreds of cases have been treated with it without complications (only one case of jaundice and one of dermatitis are quoted). It causes so little trouble that it can be given to all cases of chancroid, and thus even the unsuspected cases of syphilis—there are some—are aborted at once. And if doubtful cases can be cured thus easily and without fail, why wait?—Surg.-Commander G. B. Scott, the genito-urinary specialist of the same fleet, recommends that a chancroid with 12 days' incubation be given sulfarsenol, and 4 (not 2) g., and two full courses, not one, for the man who has had a positive Wassermann. He discourages the use of mercury: "Why fiddle about with bad tools when better are available?"—Surg.-Commander H. E. R. Stephens reports a case of fracture of the erected penis. The patient during intercourse heard and felt the penis snap. Erection was at once lost, and the penis began to swell up. When he complained it was found there was a rounded swelling in the left corpus cavernosum, the whole of the penis and scrotum were black, the distal part of the penis was turgid and stiff, the proximal supple; only the glans was not swollen and still pink. After 12 days the general effusion was completely absorbed, but the lump persisted, and there was loss of function of the organ. An incision was made over the swelling and the clot was turned out; one artery required ligature, and the tunica albuginea was sutured. Recovery was rapid and full functional activity was regained.—Surg.-Commander W. H. Edgar tells us that he has had considerable experience of the trying complaint "tennis elbow," which he ascribes to a localised myositis of the extensors of the forearm and wrist, at their origin from the external condyle, and from the thin bony ridge which runs upward therefrom; on the myositis a periostitis supervenes. The trouble is due to the prolonged strain of the extensors of the wrist in the act of grasping the racquet. It also occurs in men who do not play tennis but have to hold small-handled tools, as in cutting off rivets with a small hand-hammer, or, the same muscular action, in wood-sawing. Other games than tennis make no such prolonged call on the grip of the right hand. When the patient complains it will be found that the pain is at once located in the external condyle if he be asked to clench his hand. To avoid this condition, play with a light racquet, and one with a thin handle, massage the extensors after each day's play, and avoid "rubber grips." In treatment, diathermy is very beneficial, also the galvanic current, with or without ionisation.—Dental fitness being very important, teeth are not to be extracted if they can be preserved, and dental officers are to give monthly lectures on oral hygiene, to be illustrated by lantern slides. These lectures to be optional to men generally, except to new entries, who will be required to attend.—A gold medal is now given annually to that member of the sick berth staff who has most distinguished himself by the exhibition of zeal and efficiency in the discharge of his duties during the preceding year. This year it was won by Sick Berth Petty Officer J. T. Forest.

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[1] THE LANCET, 1921, ii., 1384.

THE WORK OF THE TUBERCULIN DISPENSARY LEAGUE.

WE publish below the report to the Tuberculin Committee of the Medical Research Council on the work of the Tuberculin Dispensary League, Chelsea, with some introductory remarks from the Council, whose sanction, as well as that of the Ministry of Health, has been obtained for the publication.

INTRODUCTORY REMARKS FROM THE MEDICAL RESEARCH COUNCIL.

In July, 1919, members of the committee of the Tuberculin Dispensary League, Chelsea, addressed a letter to the Right Hon. Christopher Addison, M.P., M.D., then Minister of Health, requesting that he would cause an inquiry to be made into the work done at the Tuberculin Dispensary, Chelsea, with a view to increasing the number of tuberculin dispensaries and to making known the use of tuberculin as practised by Dr. Camac Wilkinson. It was urged by the committee that the economy and efficiency of the methods at this dispensary called for their adoption generally, and that the number of cases cured at Chelsea warranted the demand of the committee for an inquiry. This request was referred by the Minister of Health to the Medical Research Council, on whose behalf a committee was already engaged in research work upon tuberculin and in the study of its uses for diagnosis or treatment.

The Medical Research Council thereupon invited the committee of the League to state the nature of the evidence which the committee had at their disposal for judging the results of the methods of tuberculin treatment upon which they had addressed Dr. Addison. At various subsequent dates the committee of the League submitted (*a*) testimonials to the value of Dr. Camac Wilkinson's treatment from a number of patients and their friends or medical attendants; (*b*) reports on seven cases by the dispensary nurse; and (*c*) a short summary of the results of treatment of 71 cases in 1910–1912. Of these 71 cases 13 had been lost sight of, and of the remaining 58 cases 24 per cent. were dead, 26 per cent. were unimproved, and 50 per cent., of whom many had had other forms of treatment in sanatoria or elsewhere, were said to be improved.

The Medical Research Council in March, 1920, wrote to say that in their opinion the evidence submitted did not appear to justify the demand of the dispensary committee for a special inquiry into the work done there by Dr. Camac Wilkinson. They expressed the opinion that only the careful and unbiased collection of accurate records can serve to establish the merits of a given treatment, and that no public or private advocacy of a course of treatment is justified unless it be based on that foundation. Mr. Randall Davies, treasurer of the League, thereupon explained that the data submitted to the Council were only "samples and summaries somewhat hurriedly collected," and said that full and accurate records had been kept of every case treated. He expressed his personal regret for the misunderstanding and for the time spent upon the data now withdrawn. The Council replied that they were still willing to arrange for an unbiased study of the methods and results shown in the system of records now mentioned, if these were substituted for the imperfect records previously submitted.

After the lapse of three months the Council were informed (August, 1920) that the records were ready for examination. They were then able to invite the Tuberculin Committee of the Council to undertake the inquiry. The committee delegated the details of the investigation to three of its members—namely, Dr. G. T. Western, physician-in-charge of the Inoculation Department of the London Hospital; Dr. L. S. T. Burrell, physician to the Brompton Hospital for Consumption and Diseases of the Chest; and Dr. A. S. MacNalty, a medical officer of the Ministry of Health. From December, 1920, these investigators devoted much time to the inquiry and the drafting of a report. Their work was entirely unremunerated and was undertaken for the Tuberculin Committee solely in the interests of scientific truth. It was understood from the outset that Dr. Camac Wilkinson himself desired to be dissociated personally from the inquiry. To avoid any further misunderstandings the report was submitted to the treasurer of the League for discussion with Dr. Wilkinson before its final adoption by the Council and transmission to the Ministry of Health. As a result, some modifications were made by agreement in details of the report. The report was adopted by the Medical Research Council, who, on July 20th, 1921, transmitted copies to the League and to the Ministry of Health.

The chief conclusion drawn by the sub-committee and by the Council was "that the method of tuberculin administration advocated by the Tuberculin Dispensary League does not appear to have claims over other methods of treating tuberculosis, either with or without tuberculin, which would justify its general adoption." The report was not published, and in the absence of any expressed desire by the Tuberculin Dispensary League for its publication it was regarded as a confidential document. Neither the committee of the League nor Dr. Camac Wilkinson had up to that time expressed any opinion unfavourable to the capacity or experience of those who undertook the inquiry or to the painstaking fairness with which it was conducted. Dr. Wilkinson, however, has recently published a brochure entitled "The Tuberculin Dispensary for the Poor,"[1] in which he complains of the perfunctory character of the inquiry as conducted by the Medical Research Council. Mr. Randall Davies in a preface to the pamphlet gives an incomplete selection from his correspondence with the Council.

It may be noted here that it was not until after the report had been completed that the investigators were informed that they could have had the opportunity of examining all the available living patients included in the medical records submitted to them. In the course of the inquiry they were told that Dr. Wilkinson, as a concession, would permit the members of the sub-committee to visit the tuberculin dispensary and to see the actual work in progress, but that he did not desire to enter into any discussion with them in regard to the objects of their inquiry. They availed themselves of this permission and saw a series of cases which Dr. Cooke, an assistant medical officer of the dispensary, had assembled for their inspection. They naturally, however, rigidly observed the conditions upon which they were allowed this privileged visit to the dispensary.

In view of the publication of Dr. Wilkinson's pamphlet, the Council have now consented to the publication of their report in THE LANCET. They publish it not because they or the members of the Tuberculin Committee are willing to enter into further discussion with the League or Dr. Wilkinson on the subject-matter of the report, but only to allow correction of the erroneous impressions conveyed in the pamphlet.

Report to the Tuberculin Committee of the Medical Research Council on an Examination of the Data Submitted by the Tuberculin-Dispensary League, Chelsea, in Relation to the Treatment of Tuberculosis by Tuberculin.

The following document has been received, in answer to our request and with the sanction to publish of the Ministry of Health, from the Medical Research Council:—

At a meeting of the Tuberculin Committee of the Medical Research Council held on Dec. 7th, 1920, three members of the subcommittee, Dr. G. T. Western, Dr. L. S. T. Burrell, and Dr. A. S. MacNalty were appointed to investigate the

[1] London: Nisbet and Co., Ltd. 1923. Pp. 67. 1s.

data submitted by the Tuberculin Dispensary League and to report thereon to the Committee. We entered upon the investigation on Dec. 21st, 1920, and now submit our report. At the outset we desire to express our thanks for the assistance afforded to us in our investigation by Dr. Camac Wilkinson, Dr. Cooke, and Mr. Randall Davies, hon. treasurer of the Tuberculin Dispensary League.

1. *Method of Investigation.*

We have examined the case-records and temperature charts of 147 cases treated under the auspices of the Tuberculin Dispensary League; 40 cases were, however, eliminated from detailed consideration as they were records of patients who for one cause or another discontinued treatment at the dispensary and did not undergo full courses of treatment. We conferred with Dr. Cooke, assistant medical officer at the Tuberculin Dispensary, Chelsea, in regard to the method and duration of tuberculin administration and the notes made in the case-records, and on Monday, Feb. 7th, 1921, we visited the Tuberculin Dispensary at Chelsea and saw the method of treatment in progress. We have also read the works "Tuberculin in the Diagnosis and Treatment of Tuberculosis," by Dr. W. Camac Wilkinson, and "Studies in Pulmonary Tuberculosis," by Dr. F. G. Griffiths, both of which deal with the special method of tuberculin treatment now under consideration.

2. *Description of the Method.*

The tuberculous patient is treated with tuberculin as an out-patient. He attends at the Tuberculin Dispensary which is open twice a week. The patient is given a clinical thermometer and instructed how to take his own temperature at four-hourly intervals in a day of 16 hours. At his first attendance he is clinically examined. In doubtful cases or in cases in which no evidence of tuberculosis has been previously obtained the patient is given an injection of old tuberculin (0·001 c.cm. up to 0·01 c.cm.) for purposes of diagnosis. If the temperature transiently rises to 100°, 101°, or even 105°, he is considered a positive case of tuberculosis. If there is no reaction the patient is considered non-tuberculous. It should be emphasised, however, that all the cases submitted to our inquiry were stated to have had tubercle bacilli present in the sputum at one time or another during the period of treatment, although in a certain number of cases the tuberculin test had been applied for purpose of diagnosis before the result of the bacteriological test was known. It does not therefore come within the scope of our inquiry to express any opinion as to the accuracy of the tuberculin test in the diagnosis of cases of tuberculosis. If the patient's temperature initially exceeds 99·6° F., he is told to take his temperature regularly for a week in order to see if he is a suitable subject for treatment. Practically, however, the only contra-indications recognised appear to be the presence of acute or chronic renal disease.

The tuberculins employed in treatment have been P.T.O., P.T., O.T., and T.A.F., and in certain cases B.E. (Meister, Lucius, and Brüning) latterly, owing to difficulty in obtaining these tuberculins P.T.O. (Burroughs, Wellcome) and P.T. (Meister, Lucius, and Brüning) have been employed. The treatment begins with P.T.O., then proceeds to P.T., and finally old tuberculin is used. Dr. Camac Wilkinson describes the technique as follows: "If one begins with 0·001 c.cm. or 0·0001 c.cm. and proceeds to a final dose of 1 c.cm. to 2 c.cm. of O.T. the final dose is literally a quarter of a million to two million times as potent as the first dose. To reach this large dose one proceeds by gradual increases, avoiding, as far as possible, reactions much above 100°. To measure the small doses one requires a 1 c.cm. syringe, a pipette of fine calibre on which one can measure off 1/10th c.cm. and the ordinary diluting fluid (normal saline, containing ½ pint per cent. carbolic acid). After marking with ink the point of the pipette, which measures 1/10th c.cm., one passes the ink-mark through the flame to fix it. By my plan it is usually necessary only to make one dilution, that of P.T.O. in the strength of 1 in 10. This dilution of 1 in 10 is made by putting one part of P.T.O. in a sterilised watch glass and adding to it nine times the quantity of the diluting fluid (normal saline with ½ per cent. carbolic acid). Then, in order to measure 1/1000th c.cm. of P.T.O., one merely takes in the pipette a column of this diluted fluid equal to 1/10th part of the column, which represents 1/10th c.cm. If one wishes to measure 1/10,000th c.cm. (·0001 c.cm.) one must make a first dilution of 1 in 100 instead of 1 in 10" ("Tuberculin in the Diagnosis and Treatment of Tuberculosis," W. Camac Wilkinson, London, 1912, p. 429). The dose of tuberculin is given by a Koch's syringe graduated in 1/10th and 1/20th c.cm. and is usually injected into the upper arm on the outer side. Dr. Camac Wilkinson lays stress upon the fact that due aseptic precautions should be observed in giving the injection and informed us that no local septic complications had ever occurred in his experience. A square of sterilised court plaster is placed upon the site of injection. The technique as described above appears to us to be unsuitable for general adoption as it is somewhat crude and cumbersome.[1]

After the course has been completed, that is, when the dosage of tuberculin has reached 1 c.cm. or 2 c.cm., treatment is stopped and the patient is advised to attend the dispensary from time to time for re-examination. If the patient subsequently has a relapse as evinced by sputum and pyrexia he goes through another rapid course of tuberculin. Such a course might commence with 0·01 c.cm. O.T. up to 0·5 c.cm. O.T.; then proceeding to 0·015 c.cm. B.E. terminating with 0·5 or 0·6 c.cm. B.E. The aim is to produce "so big a general reaction that the patient cannot bear any more tuberculin" (statement of Dr. Cooke). The doses of tuberculin are given every third day or twice a week.

The course of tuberculin treatment usually occupies a period of six months to nine months; in some instances the course takes 9 to 12 months. The actual cost of tuberculin is about £2 2*s.* a course.

* If "a general reaction" occurs in the course of treatment, by which Dr. Camac Wilkinson means a rise of temperature up to 99·4° F., the same dose is repeated on the next occasion.

* If the rise of temperature, however, exceeds 99·4° F. a week is allowed to elapse and the last dose is repeated. As a rule, no "reaction" follows on the repetition of the dose. It is held that doses have to be given frequently and in increasing amounts in order to obviate anaphylaxis. In Dr. Cooke's experience Dr. Camac Wilkinson has not had more than four or five cases of anaphylaxis.

* Dr. Cooke mentioned that occasionally cases of extreme "hypersensitiveness" to tuberculin occurred in which a rise of temperature (a reaction) occurred after each repetition of the dose of tuberculin. In these cases the dose is reduced; small doses are given every day and then the course of treatment is continued.

It is not clear in what way such cases of "hypersensitiveness" to tuberculin differ from those of anaphylaxis.

3. *Cases Suitable for the Tuberculin Treatment.*

Practically every form of tuberculosis has been treated by Dr. Camac Wilkinson's method. He states that cases of lupus do not do well with tuberculin, and that mixed infections are not susceptible to treatment by tuberculin; rather their presence contra-indicates its use. In the practice of the dispensary, however, cases of pulmonary tuberculosis apparently in an advanced stage of the disease and with the high or intermittent type of pyrexia which Dr. Camac Wilkinson regards as characteristic of mixed infections have been treated with tuberculin, and in certain of these cases the condition appears to have been ameliorated. Dr. Wilkinson estimates that adopting the Turban-Gerhardt classification of cases of pulmonary tuberculosis treated by tuberculin on his method 80 per cent. of cases in Stage I. and Stages I.–II. are improved by the treatment, and 60 per cent. of cases in Stage II. derive benefit from it. This estimation apparently takes into consideration a number of cases classed as tuberculous on the results of the tuberculin diagnostic test. The above figures do not appear to be in advance of those which may be obtained by other methods of treatment either with or without tuberculin.

4. *Description of the Case-Records.*

The case-records submitted for our inspection consist of brief notes of the clinical examinations made on a case-sheet and temperature charts made from temperature records kept by the patients themselves; upon the charts the doses of tuberculin and the kind of tuberculin administered are noted by the medical officer of the dispensary. A record of the weight of the patient is also kept. It is stated in every case that tubercle bacilli have been found in the patient's sputum in the early stages of treatment by tuberculin. In a certain number of cases the report had not been received at the initiation of the treatment or no sputum was available at the time. In such cases the treatment was commenced on the positive results of the diagnostic test of tuberculin, the presence of tubercle bacilli in the sputum being subsequently ascertained. The examinations for tubercle bacilli in the sputum are not made at the dispensary, but the specimens of patients' sputa are sent to the medical officer of health of the local authority in whose area the patients reside, who examines and reports upon the specimens. We observed that in the majority of cases the

[1] Dr. Wilkinson states that the technique as described was used by him in Australia 12 years ago, but that it has long since been superseded by an improved technique. According to the information furnished to us by Dr. Cooke the technique conducted at the tuberculin dispensary is as described in our report.

* Dr. Wilkinson states that the paragraphs marked with an asterisk are inaccurate and misleading. The statements therein were furnished to us in reply to our questions to Dr. Cooke. We were given to understand that Dr. Cooke was fully acquainted with the methods of Dr. Wilkinson and had had several years' acquaintance with his practice.

actual report made by the medical officer of health was not annexed to the case-papers, but the circumstance that tubercle bacilli were present was recorded on the clinical case-sheet.[3]

In only a limited number of cases are the results of subsequent examination made for tubercle bacilli recorded, and we should have preferred to see reports on the sputum made more frequently and a statement as to the presence or absence of tubercle bacilli in the sputum made at the termination of each course of treatment. This latter statement is only furnished in a minority of cases. The clinical details supplied in connexion with the cases are meagre. We append a specimen of the clinical case-sheet which is in use at the Tuberculin Dispensary. This case-sheet is not used for all the cases submitted to us. In lieu thereof a brief note as to the condition of the patient on initial examination is given. Patients attending the dispensary have the history of their illness recorded and a note is made as to the physical condition, state of the disease, and signs present at the initial examination. Each patient

[3] This statement is made for the purposes of accuracy, and we have not desired in any way to imply that we doubted the fact that tubercle bacilli were present in every case submitted to us in the investigation.

TABLE I.—*Detailed Analysis of Cases in Stage I. of Pulmonary Tuberculosis.*

No.	Name of patient.	Age.	Duration of treatment.	Initial dose in c.cm.	Final dose in c.cm.	Initial weight.	Final weight.	Stage of disease.	Remarks.
1	F. B.	18	9/6/1912–8/3/1913	0·005 P.T.O.	0·65 O.T.	10 st. 2½ lb.	9 st. 12½ lb.	I.	Medically examined twice. Went to Australia.
2	E. B.	22	13/12/1912–22/2/1915	0·005 P.T.O.	1·0 O.T.	7 st. 1 lb.	7 st. 4½ lb.	I.	Examined three times.*
3	J. B.	57	26/5/1911–23/12/1912	0·005 P.T.O.	0·1 O.T.	11 st. 11½ lb.	13 st. 5 lb.	I.	Given 0·001 c.cm. old T. and then 0·005 c.cm. for diagnosis, −7 reaction 100° F. Slight p.s. one apex.
4	F. By.	43	30/1/1913–15/6/1913	0·005 P.T.O.	1·0 O.T.	7 st. 7½ lb.	7 st. 9 lb.	I.	Examined once at onset, O.T. test. No note of details of final examination, but said to be apparently quite well.
5	Mrs. C.	22	6/6/1910–19/2/1915	0·005 P.T.O.	0·03 O.T.	8 st. 2 lb.	9 st.	I.	Three examinations. Disease extended. "Very well, September, 1920."
6	S. J.	23	18/10/1912–7/4/1913	0·005 P.T.O.	1·0 O.T.	7 st. 6 lb.	7 st. 6¾ lb.	I.	Brompton Hosp. T.B. became absent. Died Nov. 16th, 1916, kidney disease and pneum. (?).
7	Mrs. J.	33	5/6/1910–25/7/1911	0·005 P.T.O.	0·425 O.T.	7 st. 10 lb.	7 st. 11¼ lb.	I.	No details of second examination July, 1920.
8	A. L.	30	12/9/1912–27/10/1913	0·005 P.T.O.	1·0 O.T.	10 st. 11 lb.	11 st. 6¼ lb.	I.	Details of second examination, "keeping well"; July, 1920, second course of tuberculin; no details in 1913.
9	W. M.	39	9/1/1913–10/10/1914	0·005 P.T.O.	0·2 O.T.	13 st.	12 st. 7 lb.	I.	Increase in p.s.; hæmoptysis June, 1920. "Keeping well."
10	R. P.	14	30/4/1912–21/8/1919	0·005 P.T.O.	3·0 O.T.	5 st. 13 lb.	9 st. 1¾ lb.	I.	Well and at work 1920.
11	M. R.	25	20/5/1912–7/11/1912	0·005 P.T.O.	1·0 O.T.	8 st. 13¼ lb.	9 st.	I.	O.T. test. Went abroad and lost sight of; no record of second examination; hæmoptysis.
12	M. S.	26	5/7/1912–12/5/1915	0·005 P.T.O.	1·0 O.T.	6 st. 3 lb. 12 oz.	6 st. 4½ lb.	I.	Several courses. August 4th, 1920, still stage I.; both lungs. Further short course, O.T. test.
13	J. S.	15	29/11/1912–10/2/1913	0·005 P.T.O.	0·575 P.T.O.	6 st. 8¼ lb.	7 st. 7 lb.	I.	No details of subsequent examination; hæmoptysis; O.T. test.
14	K. W.	21	8/8/1912–10/3/1914	0·005 P.T.O.	1·0 O.T.	7 st. 10¾ lb.	8 st. 2 lb.	I.	T.B. absent in course of treatment. Lost sight of.
15	G. W.	?	12/5/1911–23/2/1912	0·075 P.T.O.	1·6 T.A.F.	9 st. 13 lb. ¼ oz.	9 st. 7 lb.	I.	Previous treatment at Knightwick Sanatorium. No record of physical examination.
16	J. Y.	21	20/1/1913–8/9/1913	0·005 P.T.O.	1·0 O.T.	11 st. 1¾ lb.	11 st. 11¾ lb.	I.	No details of subsequent physical examination. Went to Sydney, "well," 1917.

* In the draft report we stated we judged from the notes of this case that the disease from early infiltration progressed to cavities in both upper lobes, and that the patient was therefore in stage III. of tuberculosis at the end of treatment. Dr. Wilkinson maintained, however, that the patient was still in stage I. and that we had mistaken the rough delineation of the affected area for cavities. As mentioned in the text of the report, the cases considered have been classed according to the stage of disease in which they are in at the beginning of the course of tuberculin treatment. This stage is not necessarily the one in which the patient should be grouped at the termination of treatment and, from the evidence of the notes, it was apparently not so in this particular case. In deference, however, to Dr. Wilkinson's protest we eliminate the comment from the published report.

TABLE II.—*Classification of 107 Patients who have Undergone the Complete Course of Tuberculin Treatment, According to the Stage of Pulmonary Tuberculosis at Onset of Treatment and the Year in which they Commenced Treatment: Their Subsequent Fate Being Recorded in Ensuing Years up to 1920.**

Stage (Turban-Gerhardt classification) of commencement of tuberculin treatment.	Year of commencement of treatment.	No of persons treated.	Fate of persons undergoing treatment in subsequent years. (A = alive; D = dead.)															
			1912		1913		1914		1915		1916		1917		1918		1919		1920	
			A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D	A	D
Stage I.	1910	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
	1911	2	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—
	1912	10	—	—	2	—	1	—	1	—	—	1	—	—	—	—	—	—	5	—
	1913	2	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	—	1	—
Stage II.	1911	13	1	1	1	2	—	—	—	1	—	—	—	—	—	—	—	—	7	1
	1912	21	1	—	—	2	—	3	3	—	—	1	1	—	—	2	—	—	8	—
Stages II.–III.	1910	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—
	1911	14	1	3	3	1	—	1	1	2	—	1	—	1	—	—	—	—	—	—
	1912	12	—	1	1	1	—	2	1	—	—	1	—	—	—	—	—	1	4	—
Stage III.	1910	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—
	1911	9	1	4	1	—	1	—	—	1	—	—	—	—	—	—	—	—	1	—
	1912	20	—	1	3	3	1	9	2	—	—	—	1	—	—	—	—	—	—	—
All stages of disease.	Period 1910–1913	107	6	10	11	8	3	16	8	4	—	4	2	1	1	2	—	2	28	1

Total of patients alive in 1920 28
" " dead by 1920 48
" " lost sight of by 1920 31

* A certain number of patients who for one cause or another did not complete the tuberculin course are not included in this table.

TABLE III.—*Classification of 100 Patients in Stages of Pulmonary Tuberculosis, according to Sex and Age.*

(1) MALES.

Stage of pulmonary tuberculosis.	10–	15–	20–	25–	35–	40–	45–	50–	55–	60–	65–	Total all ages.
I.	1	2	1	—	1	—	—	—	1	—	—	6
II.	1	1	5	5	1	3	1	1	—	1	1	20
II.–III.	—	—	3	7	1	5	3	—	—	—	—	19
III.	—	—	2	5	4	3	2	2	—	—	—	18
Total ..	2	3	11	17	7	11	6	3	1	1	1	63

(2) FEMALES.

I.	—	—	4	4	—	1	—	—	—	—	—	9
II.	—	—	2	6	3	2	—	—	—	—	—	13
II.–III.	—	1	1	2	1	—	—	—	—	—	—	5
III.	—	1	1	7	1	—	—	—	—	—	—	10
Total ..	—	2	8	19	5	3	—	—	—	—	—	37

(3) MALES AND FEMALES.

I.	1	2	5	4	1	1	—	—	1	—	—	15
II.	1	1	7	11	4	5	1	1	—	1	1	33
II.–III.	—	1	4	9	2	5	3	—	—	—	—	24
III.	—	1	3	12	5	3	2	2	—	—	—	28
Total ..	2	5	19	36	12	14	6	3	1	1	1	100

on an average appears to be only once or twice clinically examined during the course of treatment. It may be that the patient has been more frequently examined, but if so the results of such examination have not been recorded on the case-papers. We should have preferred to have seen a careful and complete record of the physical condition present in each patient at the termination of the course of tuberculin treatment. In a number of cases there is no record of the patient having undergone such an examination. Instead the statements are made that "the patient is keeping well," or "is apparently quite well," or "is well and at work" at the termination of a course of treatment.

With regard to the temperature records, the temperatures have been taken and recorded by the patients themselves four-hourly. This procedure, inevitable, however, for the dispensary method of treatment, is not free from the criticism that the patient may make an erroneous record or that his anxiety to appear to be doing well may lead him to record a lower temperature than that given by his thermometer. In certain of the charts also there are gaps, the patient forgetting to take his temperature or being away, and not recording his temperature for a number of days. The doses of tuberculin given are clearly shown on the charts, but in a number of cases the patient has had several successive courses of treatment, and we have experienced some difficulty occasionally in differentiating between a second rapid course of tuberculin and a prolonged single course of tuberculin treatment. The absence of full and concurrent clinical notes on the progress of the case has further hampered us in the detailed examination of the temperature charts.

We cannot refrain from the criticism that on the grounds stated above the evidence furnished by the case-records is not so full and complete as is desirable to satisfy a scientific tribunal, and that in the majority of the cases submitted to us the claim that the patient has improved or is "well" as the result of treatment depends upon the statement to this effect of the medical officer in charge of the case and is unsupported by detailed clinical evidence. Many of the temperature charts exhibit high reactions after the injection of the dose of tuberculin and in certain cases, notably those of C. (Stage II.–III.) and B. (Stage III.) the injections of tuberculin appear to have led to the disease becoming extremely active with a rapidly fatal issue.

Clinical Examination of Patients.

Dr. Camac Wilkinson kindly arranged for us to see several cases of tuberculosis which were undergoing or had undergone treatment with tuberculin at the Tuberculin Dispensary. We saw and examined 12 cases suffering from either pulmonary tuberculosis, laryngeal tuberculosis, or tuberculous glands. In three of the cases the disease appeared to be quiescent; these cases were of the chronic fibrosed type such as may be seen in any out-patient department for tuberculosis. In others the disease appeared to be still active. Although this activity was indicated by the progress and character of the pulmonary signs, dyspnœa, increased pulse-rate, and other constitutional symptoms, yet these patients appeared to have been educated by increasing doses to tolerate large doses of tuberculin without manifesting a reaction in temperature. In such cases, therefore, the patient appeared to be immunised against the effects of large doses of tuberculin rather than against the effects of his tuberculous lesion.

5. *Analysis of the Records.*

(Number of cases, 107.)

The cases have been grouped according to the Turban-Gerhardt system of classification into three stages; the patient is classed, according to the stage of disease which he is in at the beginning of the course of tuberculin treatment. As already observed, the clinical notes are not copious enough to determine the patient's stage of disease at the end of the period of treatment in every case. In all the cases tubercle bacilli were stated to be present in the sputum.

Number of Patients Treated in Each Stage of the Disease (total, 107).

Stage I.	16	Stages II.–III. ..	27
Stage II.	34	Stage III.	30

Longevity of Cases.

The 107 patients reviewed by us commenced treatment in the years 1910, 1911, 1912, and 1913; 4 patients commenced treatment in 1910, 37 patients in 1911, 64 patients in 1912, and 2 patients in 1913. The majority of the patients therefore commenced treatment in the years 1911 and 1912. In Table II. (Appendix) 107 patients commencing tuberculin treatment in the period 1910–13 have been classified according to the stage of disease and the years in which they commenced treatment, their subsequent fate, whether alive or dead, being recorded in ensuing years up to 1920.

The table may be summarised thus with regard to the fate of these 107 cases as ascertained by the year 1920. Of 16 cases in Stage I., treated in 1910–13, in 1920, 8 were known to be alive, 1 to be dead,[4] and 7 were lost sight of. Of 34 cases in Stage II. treated in 1911–12, in 1920, 15 were known to be alive, 13 to be dead, and 6 were lost sight of. Of 27 cases in Stages II.–III. treated in 1910–12, in 1920, 4 were known to be alive, 16 to be dead, and 7 were lost sight of. Of 30 cases in Stage III. treated in 1910–12, in 1920, 1 was known to be alive, 19 were dead, and 10 were lost sight of. Of 107 cases in all stages of the disease treated during the period 1910–13, in 1920, 28 were known to be alive, 48 were dead, and 31 were lost sight of.

These figures cannot be said to demonstrate any striking influence of tuberculin upon longevity. The cases that live longest are those in which the disease is recognised earliest, which corresponds with the usual figures of longevity in tuberculosis, quite apart from any special method of treatment. In 100 of the patients figures are available as to age and sex. There were 63 males and 37 females. Of known survivors in 1920, 18 are males and 10 females, 10 males being over 35 years of age at the initiation of treatment and 5 females over 35 years of age. This mature age of the majority of the survivors suggests a chronic fibrosed type of case which, in ordinary circumstances, usually survives for a considerable length of time, and this suggestion appears to be supported, so far as the records indicate, by the clinical description of the cases. From this aspect, again, we fail to find any preponderating influence played by tuberculin treatment in prolonging the life of patients. Analysis of the figures therefore furnishes little justification for the claim that by this tuberculin method of treatment the lives of patients are prolonged to a far greater extent than by other methods of tuberculosis treatment.

It is within the experience of all of us that patients suffering from pulmonary tuberculosis with tubercle bacilli in their sputum or patients suffering from genito-urinary tuberculosis with tubercle bacilli persisting in the urine may live with other forms of treatment for a considerable period of years.

Conclusions.

1. The evidence submitted by the Tuberculin Dispensary League as to the results of the treatment of tuberculosis by tuberculin is not so full and satisfactory as is desirable in an investigation of this character. The cases are limited in number and the clinical evidence supplied in relation to them is meagre.

2. There is no doubt that this method of tuberculin administration succeeds in immunising patients to large doses of tuberculin, but there is no evidence that it also immunises them to tuberculosis. Indeed, there is distinct evidence to the contrary, for the majority of patients after an initial course of tuberculin treatment have manifested signs of active tuberculosis and have had to undergo subsequent courses of tuberculin treatment. Also, certain patients in the intermediate stage of tuberculosis have died with signs of active disease, although they had recently tolerated large doses of tuberculin.

[4] This patient is stated to have died four years after treatment of nephritis and pneumonia.

3. The most favourable results relate to the 16 cases in Stage I. (Turban-Gerhardt), of whom only one is known to be dead, while eight were stated to be alive and well in 1920 (Table II.). In stating this we cannot assume that the patients were treated solely by tuberculin and underwent no other special method of treatment, for one patient is specifically stated to have undergone treatment at Knightwick Sanatorium and another was an in-patient at Brompton Hospital. There is reason to believe also that a certain number of patients who attended the Tuberculin Dispensary have at one time or another been under treatment at various institutions where they have learned the various forms of hygienic treatment of their disease. In the intermediate and advanced stages of the disease the results of tuberculin treatment are less favourable and therefore the recognition of tuberculosis in the early stage and the placing of the patient under hygienic conditions of life probably rank as equal with, or more important factors than, tuberculin treatment alone in the arrest of the disease. Also, the number of cases in the first stage (16) is too few to enable a general conclusion to be drawn as to the efficacy of tuberculin treatment for cases in this stage.

4. The longevity of cases treated by this tuberculin method is equally seen in cases untreated by tuberculin, and the mature age of many of the survivors is indicative of a chronic type of pulmonary tuberculosis which in ordinary circumstances, apart from any special form of treatment, usually allows survival in the individual for a considerable length of time.

5. Occasionally, there would seem to be individual cases of pulmonary tuberculosis which derive distinct benefit from tuberculin treatment. There is, however, always the risk that large doses of tuberculin may light up latent foci of tuberculous disease, and we deprecate the continued administration of tuberculin after the temperature reactions and constitutional disturbance have indicated renewed activity of the disease. In such cases there is undoubtedly risk that continuance of tuberculin administration may accelerate a fatal termination.

6. For the reasons given above, we are of opinion that the method of tuberculin administration advocated by the Tuberculin Dispensary League does not appear to have claims over other methods of treating tuberculosis, either with or without tuberculin, which would justify its general adoption.

(Signed) G. T. WESTERN.
L. S. T. BURRELL.
A. S. MACNALTY.

BRITISH MEDICAL ASSOCIATION:
THE COUNCIL DINNER.

THE second annual Council dinner of the British Medical Association was held at the Hotel Victoria, London, on Oct. 24th, Prof. R. A. Bolam, chairman of Council, presiding. The dinner was made the occasion for special congratulation to Sir Dawson Williams, the editor of the *British Medical Journal*, who has just completed 25 years in the editorial chair. Among the guests present were—

Sir William Joynson-Hicks, the Minister of Health; Lord Justice Atkin; Sir Humphry Rolleston, President of the Royal College of Physicians of London; Sir John Bland-Sutton, President of the Royal College of Surgeons of England; Sir Charters Symonds; Sir William Hale-White, President of the Royal Society of Medicine; Sir Dawson Williams; Lord Dawson; Sir John Collie, M.P.; Sir S. Squire Sprigge; Dr. T. Watts, M.P.; Dr. A. Bostock Hill, President, Association of County Medical Officers of Health; Major-General J. B. Smith, President, India Office Medical Board; Sir Henry Craik, M.P.; Surg. Rear Admiral J. Chambers, R.N., Director-General Royal Navy Medical Service; Sir Arthur Robinson, First Secretary, Ministry of Health; Lieut.-General Sir W. B. Leishman, Director-General, Army Medical Service; Sir George Newman, Chief Medical Officer, Ministry of Health; Air Commodore D. Munro, Director, R.A.F. Medical Service; Dr. T. W. Naylor Barlow, President, Society of Medical Officers of Health; Sir Sydney Russell-Wells, M.P.; Sir George Makins; Sir Jenner Verrall; Dr. Molloy, M.P.; Sir John Atkins; Sir James Dundas-Grant; Sir Edwin Lutyens, R.A.; Sir William Macpherson; Sir Alfred Rice-Oxley; and Sir Leonard Rogers.

The toast of "The Common Health" was proposed by Mr. C. P. Childe, the President of the Association, and was replied to by Sir W. Joynson-Hicks and Sir William Hale-White. Mr. Childe showed by the striking figures which he adduced how vast had been the improvements in common health during the last century, but he urged the medical profession to come more prominently into public life, and to secure better representation in Parliament and upon the boards of municipal and county authorities. The Minister of Health, in an eloquent reply, proved by a still more striking series of figures what a huge economic loss to the country was implied in time wasted through ill-health. But the State and the medical practitioner, he said, must coöperate against the fell diseases and foul conditions which still obtained, causing agony in the home. Sir William Hale-White, who also replied, pointed out that he was responding to a toast whose cordial acceptance would be unchallenged. Men differed on matters of creeds, political ideals, and national boundaries, but were unanimous in their desire for health.

The toast of the evening, "Our Editor," was proposed by Sir John Bland-Sutton, who sketched Sir Dawson Williams's career as pathologist and clinician and later as editor, being able to do so at each step on personal knowledge extending over 40 years. Sir Dawson Williams, who was received with acclamation, said that he seemed to have been enjoying the privilege of hearing his own obituary notice. He referred to Bland-Sutton as one of the founders of comparative pathology, who might have been pure man of science or physician but who elected for surgery. The distinction between medicine and surgery, said Sir Dawson Williams, had recently been defined for him by a lady in the following words: "The physican gives you something to take in, while the surgeon takes something out of you." Alluding to his earlier work at the *British Medical Journal*, he said that he was associated with Ernest Hart, "the quickest-witted man he ever knew," who had been trained under Thomas Wakley "who sowed wild oats with both hands" when starting THE LANCET, whose centenary they had just had the pleasure of celebrating. After a brief description of the development of the British Medical Association during his long connexion with it, Sir Dawson Williams concluded his speech by quoting the words used by Prof. Starling in the last Harveian oration, in which the belief was affirmed that the physician of to-day is seeing not a renaissance, but a new birth of man's power over his environment. In reference to the impending change of headquarters from the Strand to a beautiful building in Bloomsbury, the speaker said that in their new home they would be able to hold dinners and receive guests, and that plate would be necessary, towards which he begged to contribute a snuff-box.

The toast of "The Guests" was proposed from the chair and replied to by the Lord Justice Atkin and Sir Humphry Rolleston. Dr. Wallace Henry, giving the toast of the chairman, said that Prof. Bolam's work in bringing about a linkage between the Association and the Society of Medical Officers of Health, and in securing Sir Edwin Lutyens's beautiful building as their new headquarters had earned the gratitude of all.

LADIES' MEDICAL GOLFING SOCIETY.—The autumn meeting was held at Denham Golf Club on Oct. 25th. The results of the various competitions were as follows: Scratch prize: Mrs. Granger Harrison, 89. Captain's prize for best net score in either division: Mrs. Jennings, 97 − 22 = 75. Second prize (juniors), Dr. Joan Ross, 101 − 21 = 80. First and second senior handicap prizes: Lady Goadby, 96 − 14 = 82; Mrs. Cavendish Fuller, 94 − 10 = 84 respectively. Prize for best 16 holes: Mrs. Nicholson, 68. Foursomes v. bogey: Miss Smyth and Lady Goadby, 1 down.

THE LANCET.

LONDON: SATURDAY, NOVEMBER 3, 1923.

THE HEALTH OF THE SCHOOL CHILD.

SIR GEORGE NEWMAN'S report[1] on the school medical service for the past year is reassuring. While it deplores the fact that the need for financial restriction should have arrested certain developments almost at their birth, assurance is given that this is but a temporary phase and that the machinery so laboriously built up by local education authorities in previous years, though for the moment denied further expansion, has not been seriously damaged nor, taking the country as a whole, appreciably slowed down. "It remains intact," Sir G. NEWMAN writes, "and ready for increased output directly circumstances permit." The extraordinarily rapid growth of medical work among school-children, its detailed comprehensiveness, its ramifications which have now insinuated their way into every phase of educational life are a tribute to the persevering energy of the Board of Education and to the efficient administration of its medical service. Ten years ago the only statutory obligations on local education authorities in connexion with medical services were to provide medical inspection for children in elementary schools and to secure appropriate education for the blind and deaf; special provision for mental defectives, and medical treatment of the elementary school child were then entirely optional. It was in 1914 that the obligation was placed on authorities to provide for mentally defective children, and in 1918 this obligation was extended to physically defective children. Every authority is now obliged to make provision for medical treatment, and the school medical officer has found his way into secondary schools and other places of higher education. Out of an average of well over five million children attending elementary schools in England and Wales 46 per cent. were medically inspected during the school year; we are told that about 40 per cent. of the children were found suffering from a greater or less degree of physical defect, quite apart from disability due to infectious disease. About 2 per cent. of our elementary school population suffer from definite malnutrition, heart disease, anæmia, or deformities; in the country as a whole this means 100,000 victims of each of these four conditions. Among the infectious diseases prevalent during 1921 the highest mortality was attributable to diphtheria, whooping-cough, measles in descending order, while in the past year whooping-cough came first, measles second, and diphtheria third. Measles and scarlet fever, however, are still the greatest enemies of child life on account of their remote results.

Considerable progress has been achieved in dealing with cripple children. The science and art of orthopædics made great strides during the war. Crippling is obvious to the eye, and the growth of public interest in this type of defect has been stimulated energetically all over the country with the result that its treatment, thanks to the help of enthusiastic voluntary agencies, is going steadily ahead. Sir G. NEWMAN points out, however, that to deal satisfactorily with the problem of the cripple child early ascertainment of defect is essential. The incidence is largely prior to school life and occurs at any time up to 5 years from infantile paralysis, rickets, or non-pulmonary tuberculosis. He regards the physical condition of the pre-school child as still one of the most urgent problems of public hygiene, and devotes considerable space to the subject in the report. The first 12 or perhaps 18 months of the child's post-natal existence are passed under the watchful eye of the local health authority. The child attends the infant welfare centre periodically or is seen at home by the health visitor, but from this age until he enters school at 5 years, beyond a sporadic visit or two to the welfare centre, there is no further supervision of health. The age-period of 2 to 5 has been aptly described by one school medical officer as No-Man's Land. "The fact is," Sir G. NEWMAN writes, "that after the first year of life the young child has to bear a heavy burden of environmental neglect associated with bad housing, poverty, and absence of hygienic supervision. As a result the school medical service is faced with the hard issue that out of an infant population born healthy 35 to 40 per cent. of the children who are admitted to school at 5 years of age bear with them physical defects which could have been either prevented or cured . . . Here we have the most serious and wasteful defect in our national health service." This is surely a grave indictment of our present public health system and steps should be taken at once to remedy an acknowledged ill. Recent observations have shown that the earliest period of physical growth is the most important, for seeds of disease sown when resistance is slight may establish themselves beyond hope of removal. Over 12 years ago Dr. C. J. THOMAS, a medical officer to the L.C.C., demonstrated from carefully-sorted data that growth and capacity go hand in hand, and that the earlier the child contracts disease the greater the total effect produced. In this report we have the medical officer of the Board of Education emphasising the importance of these findings in a table comparing the heights and weights of London school-children in 1905 and 1923. It is found that the 8-year-old child in the selected area is three and three-quarters of a pound heavier and half an inch taller to-day than the child of the same age in the same area 15 years ago. Here is proof of the amazing cumulative effect of education and social effort.

Sir G. NEWMAN calls for more coördination between the medical officer of health and the school medical service. Here by joining hands a quite unnecessary gap may be bridged. The two to five-year-old period requires careful individual study; it cannot be tackled by the methods of the infant welfare centre. The child is now a separate entity from the mother; another baby has probably taken its place, and being less dependent it is left more to its own devices. It is going through a period when mental development is following closely in the wake of physical development; without the physical there can be little mental development, and physical arrest implies restricted mental growth. Here is a stage where doctors and educationists must work together, each pulling his own weight, the educationist directing the child's development by skilfully-planned coördination of muscular and mental activities, the doctor keeping

[1] The Health of the School Child. Annual Report of the Chief Medical Officer of the Board of Education for the Year 1922. H.M. Stationery Office. Pp. 108. Price 1*s.* 6*d.*

a watchful eye on the child's general health and hygiene. The nursery school which has evolved out of the old-fashioned day nursery is the only place to-day where this work is being done in unison, and the number of nursery schools—24 for the whole of England and Wales, accommodating little over 1000 children altogether—is lamentably small. It is to be hoped that the Board will relax the financial stringency under which proposed schemes for dealing with this problem are languishing to-day. A scheme should be devised which, in Sir G. NEWMAN'S words, "shall be elastic enough to comprise all children of pre-school age in need of assistance." Another problem urgently awaiting administrative solution is that of the dull and backward child. All schemes to deal with established defects cost money; all are relatively expensive. To tackle the problem of the pre-school age is to diminish the number of cripples, and is sound financial policy. In 40 per cent. of the dull and backward children in the schools the unfortunate condition, according to the report, is accounted for by extraneous or non-mental factors, and it must be apparent that the earlier these conditions are investigated and courageously taken in hand the greater the saving in future expenditure. The report ends on an optimistic note. There is evidence throughout its pages of serious efforts being made to coördinate and consolidate social effort. It is the most constructive and encouraging document which has yet emerged from the medical department of the Board of Education.

THE NEXT STEP IN THE PANEL CRISIS.

THE situation in regard to the future of the insurance medical service has altered essentially during the past week as the result of correspondence between the Minister of Health and the Medical Secretary of the British Medical Association, set out on another page. The Minister has expressed his willingness to submit to the Cabinet a proposal to appoint a Royal Commission to consider the whole subject at an early date, and to remit to this Commission the question of remuneration. This offer will give the medical profession the desired opportunity of putting their views fully before the public in an orderly manner, while the Minister's willingness to accept such an inquiry indicates that the economic side of contract medical practice as at present administered is in need of full and intimate investigation. "I am not enamoured of the panel system," writes the present Minister, expressing a personal view other than that of some of his predecessors, who regarded this system as a basis on which an efficient medical service could be built up for the mass of the people. A new and specious point has been raised from the actuarial side, for the Minister contends that he cannot draw upon the reserves of insurance money, however great, because they have been built up by payments from the young and healthy people, who will claim the money in their later years when sickness is heavy. It needs the atmosphere of public comment, consequent on the findings of a Royal Commission, to deal with points like these freely.

The offer of a Royal Commission by the Minister does not immediately ease the present situation. As an impartial review of the methods and results of administering all the benefits provided by the Insurance Acts during 10 years' working it will certainly be welcomed by the doctors. Such a review could not fail to stimulate the Ministry to develop and complete the medical service in order to give to the community a real return for the money expended. The panel system at present, it must be admitted, is only half a service, and we are in sympathy with the remarks of the chairman of the Marylebone division, reported on p. 1004, in which he contends that the national health insurance must remain incomplete until the hospitals with their great resources form a part of it. It will be a great day for the hospitals, he says, when their special services are so required. This is also the view of the British Hospitals Association. Reference to a Royal Commission could hardly fail to result in the extension of the medical service in many directions in which it is now incomplete, and to which we have pointed so many times. Means of diagnosis, consultant and specialist services, practitioner clinics, are some of these needs yet unsupplied. But the settlement of the immediate difficulty of the position lies very largely in the hands of the Minister himself. An emphatic declaration from him to the effect that insurance funds as a whole are administered by the department, and that the sickness benefit fund controlled by approved societies is distinct from the medical benefit fund administered by insurance committees, would in itself go far to ease the situation. The Minister has been reported on one occasion as saying that there are only two ways of paying the doctors more than 8*s.* 6*d.*—either the money comes out of the taxpayers' pockets or out of that of the insured persons. "The doctors must remember that when I have made an agreement with them I have still to make an arrangement with the approved societies." And on another that the money belongs to the State, "and, as I am the representative of the State, it is my money." It all seems very disquieting, and the position is clearly a legacy of the arrangement made in 1922 when the Treasury grant was abolished and a portion of the present capitation fee taken out of surplus funds revealed by the first valuation of the societies.

The professional position in the dispute is quite clear. The doctors believe that the insurance fund is in a position to honour the claims made upon it, and that the medical benefit portion of that fund should be adjusted so as to provide the fee which after (not before) negotiation is considered adequate to ensure an efficient service. The position of the approved societies is equally clear. They declare that they have no further interest in the dispute if they can be assured that their sickness benefit funds are not to suffer as the result of any award to the doctors. The position of the Minister is not so clear. "Control" may be difficult to define, but the fear of control of their service by the approved societies has been sufficient to unite, not panel practitioners alone, but all sections of the medical profession, in a common act of refusal. We set out in another column the steps by which this insidious process may arise, a process which, like an early cancer, gave rise to little pain or discomfort in its initiatory stages, but which, if not dealt with, is likely in its course to sap the strength of the whole organism. It is easy to assert or contradict the presence of a malignant growth in the early stage. The mere hint of outside control has at any rate been sufficient to cause alarm among those who regard the doctor's responsibility to his patients and to the State as an asset of paramount importance. A pledge from the responsible Minister that this fear is ill-founded is the one thing needed. No one would wish to operate on a neoplasm whose existence had been categorically denied by a trusty and competent pathologist. We can only hope that, in the course of further negotiations, the position may be made so clear and certain that the profession will feel secure in rendering service to the Ministry and through the Ministry to the community at large. The result of the pourparlers now taking place will possibly be known to our readers before this reaches them.

THE EXPERT WITNESS.

IN a popular statement of the degrees of untruthfulness the superlative is reserved for the expert witness. When scientific evidence adduced by plaintiff and defendant seems to be mutually contradictory, the layman is puzzled and grows sceptical of scientific values. Indeed, when in some big criminal trial the case for the Crown is supported by an overpowering weight of technical authority, he is inclined to assume that an equal volume of authority would be forthcoming for the defence if the defence were organised on the same scale and with the same resources. It might help to preserve the dignity of science amid the rough-and-tumble of the law-courts if a system of scientific referees were developed on the lines of the nautical assessors in Admiralty cases, as recently suggested by Mr. C. AINSWORTH MITCHELL in his interesting little book "The Expert Witness." [1] But already the County Court, the High Court, and the Court of Appeal possess wide general powers of summoning the aid of qualified assessors in all sorts of matters, apart from the special powers given by the Employers Liability Act and the Patents Act. Judges have shown less inclination to use these powers than might have been expected. It is perhaps natural that courts should be slow to delegate their judicial functions; often, too, the scientific issues in a case are but a part of what requires to be viewed as a whole.

Approaching from another side the task of saving scientific witnesses from undignified situations, the British Medical Association at its Portsmouth meeting last July passed a motion recommending that medical men called as witnesses in legal cases (especially under the Workmen's Compensation Act) should consult with each other before the case is heard, so that they may, if possible, agree upon facts. The kind of incident which inspired this motion is illustrated by a street accident claim at Birmingham Assizes, where the plaintiff's medical witness deposed that the photographs showed a fracture of the skull, whereas another witness, the radiographer, presently stated, on the contrary, that the lines relied upon in the photograph represented blood-vessels and not the lines of a fracture. Discrepancies of this nature, in so far as they can be foreseen before the trial actually begins, could presumably be cured by closer preliminary attention to points likely to be controversial and by obtaining further photographic negatives to remove doubts or obscurities. Desirable as it may be in the abstract, we are not sanguine of the prospects of the procedure recommended. By all means let all the cards be placed on the table. The public, however, and its legal advisers have yet to be educated up to perfect altruism in litigation; the parties to an action will, we fear, be suspicious of anything which can possibly be misconstrued as fraternising with the enemy in the trenches opposite. If a medical report about a plaintiff's physical condition is to be common property, the doctor who has to set pen to paper may find himself exposed to all kinds of subtle pressure as to the limits of what he is going to say. One can even imagine the suggestion that the doctor's report had better be settled in counsel's chambers. It is clearly desirable that the general value of professional testimony should not be impeached by incidents which mislead laymen into the cynical view that plaintiff and defendant can always find medical experts who will support their respective cases at all costs.

[1] Cambridge: W. Heffer and Son. 1923. Pp. 188. 7s. 6d.

But even if all the material facts in a case can be agreed beforehand, there will still be discrepancies as to the opinions to be based upon those facts. When in a street accident case the full tale of the plaintiff's broken bones and bruises is told, we cannot expect the expert witnesses on both sides to agree upon the degree or duration of traumatic neurasthenia, except by some form of compromise which more properly belongs to the mental processes of a jury. The elimination of controversy between professional witnesses in such a case—whether attained by preliminary agreement or by the employment of scientific assessor or referee—would have obvious advantage. The value of the combination of legal and medical qualifications in the person constituting the judicial tribunal is often recognised when coroners are appointed. No doubt the doctrine of judicial ignorance prevents other judicial officers from acquiring for themselves and applying in the public interest a suitable measure of scientific knowledge. Perhaps a future generation will insist that, for the purposes of Workmen's Compensation, every county court judge should be a fully qualified medical practitioner, as well as, for the purposes of the Rent Restriction Acts, a fully qualified architect and surveyor. Some day we may even see an official medical representative appointed to the County Court Rules Committee. Meanwhile medical witnesses can play their own part in upholding the reputation of scientific evidence. They can give their evidence both in criminal and in civil cases with restraint and caution and with as much impartiality as the lawyers on both sides permit. The calm of the judge is a better model than the heat of the advocate.

THE CENTENARY DINNER OF "THE LANCET."

A DINNER in celebration of the centenary of THE LANCET will be held in London on the evening of Thursday, Nov. 29th, at the Hotel Victoria, Northumberland-avenue, London, W.C., at 7.30 for 8 P.M. Sir Donald MacAlister, President of the General Medical Council, will take the chair, and will be supported by the Presidents of the Royal Society, the Royal Colleges of Physicians of London, Edinburgh, and Dublin, the Royal Colleges of Surgeons of England, Scotland, and in Ireland, the Chief Medical Officer of the Ministry of Health, the President of the British Medical Association, and the Presidents of the Royal Society of Medicine and of the Medical Society of London. The Minister of Health has signified his intention of being present, and it is hoped that a gathering representative of all the interests associated with the medical profession will meet on this occasion. Those who desire to be present should communicate before Nov. 15th with Mr. H. D. Gillies or Dr. J. H. W. Laing (hon. secs.) at 7, Portland-place, London, W. 1.

The charge for the dinner has been fixed at 15s., exclusive of wines, and if notice be given in advance endeavour will be made to arrange that friends who so desire shall sit together.

ROYAL EAST SUSSEX HOSPITAL.—On Oct. 23rd Princess Alice opened the new building erected in Cambridge-road, Hastings, overlooking the sea. The institution at White Rock, founded some 83 years ago, had outgrown the demands made upon it, but when the new site was presented to the hospital by a committee in memory of King Edward VII. it was not expected that such a long interval would elapse before the new hospital was opened. The foundation-stone was laid on July 15th, 1914, but the war put a stop to the building operations. It was eventually decided to include the new hospital in the war memorial fund, and as a result the total cost of the new hospital for 105 beds—namely, £120,000—has been covered. The hospital is now to be known as the Royal East Sussex Hospital.

Annotations.

"Ne quid nimis."

THE DIRECTOR OF THE NEW SCHOOL OF HYGIENE.

THE selection of Dr. Andrew Balfour for the post of first director of the School of Hygiene endowed by the Rockefeller Foundation will cause no surprise, since his unique qualifications for the post are sufficiently obvious. We expressed a belief last month when recording his resignation from the Wellcome Bureau of Scientific Research, which he has directed for ten years, that his period of unemployment would be short, and indeed it has proved so. Dr. Balfour has had a brilliant academic career at Edinburgh and Cambridge, where he was a prominent member and afterwards captain of the football team, He also gained his Scottish international colours. He served in the South African War as civil surgeon and was director of the Wellcome Tropical Research Laboratories in Khartoum from 1902–1913. During the Great War Dr. Balfour acted as sanitary adviser to Headquarters in Egypt, Salonika, Mesopotamia. India, and Africa. His reports on the health conditions of that period are of first-rate importance. In 1918 he undertook the investigation of the organisation of the public health services for the Egyptian Government and his report on the health problems of Mauritius followed on a visit to the island in 1921. At the Wellcome Bureau and elsewhere Dr. Balfour has himself undertaken much valuable research, notably on the spirochætosis of relapsing fever, blood conditions, and bacteriological problems connected with sanitation. He is joint editor of Lewis and Balfour's "Public Health and Preventive Medicine" and has published a number of monographs in connexion with sanitation in the tropics. The choice of a director of an institute established for teaching and research is analogous in some respects to that of a Prime Minister, for on the wisdom shown in this initial appointment depends the formation and later the cohesion of the team of associate workers. Honesty of purpose, skill in administration, knowledge of men—all these are indispensable in the head of a State or of a research intitute, but the latter must also possess considerable scientific standing if he is to attract fine colleagues. We congratulate the committee on having chosen a man under whose general direction distinguished specialists will be proud to work.

THE STRUCTURE OF THE THYROID GLAND.

THE appearance of diagrammatic simplicity which ordinary sections of the thyroid present has encouraged a belief that its essential structure is obvious and well understood. In the current number of the *Journal of Pathology and Bacteriology* (vol. xxvi., p. 459), however, Dr. G. Scott Williamson and Dr. I. H. Pearse bring forward a novel interpretation of its morphology. The familiar vesicle lined with cubical or columnar epithelium and filled with colloid is not, according to these authors, the unit of structure, but a mobile and transitory phase of functional activity. The fundamental unit is a lymphatic space or sinusoid in which long convoluted columns of syncytial epithelium float, richly covered with a plexus of capillaries and not continuous with one another. In their resting stage these epithelial columns are familiar as the interalveolar masses of undifferentiated epithelium lying between the colloid-filled vesicles. Activity takes place along two distinct lines. In the first, droplets of colloid appear at various places in a column and increase in size until its continuity is broken up by a series of tense vesicles of varying sizes round which the epithelium is rearranged; this process of "vesiculation" gives rise to the conventional typical appearance of the thyroid, but, in the view of the authors, it does not represent the real secretory activity of the gland. This is exhibited in the second process described as "lacunation" in which the epithelium swells, becomes granular and vacuolated, and then partly dissolves, the resultant fluid mass accumulating in relatively lax irregular spaces in the centre of the epithelial columns. At the same time the lymphatic space becomes more or less distended with liquid, and lymphocytes appear in the intralobular lymph channels. This secretory activity is present in very small amount in the average normal thyroid. Judging from the authors' description and figures it is represented more largely in Graves's disease, and we shall await with interest the extension of these new ideas to the interpretation of pathological changes.

FIFTH CONGRESS OF THE FAR EASTERN ASSOCIATION OF TROPICAL MEDICINE.

FROM Sept. 3rd to 8th the Fifth Congress of the Far Eastern Association of Tropical Medicine met at Singapore, under the presidency of the Hon. Dr. A. L. Hoops, principal civil medical officer of the Straits Settlements, and member of the Legislative Council. In his presidential address Dr. Hoops referred to the formless growth of cities, with the consequent overcrowding and dissemination of preventable diseases such as tuberculosis. Town planning, zoning, the building of houses, the provision of cheap transport, and of modern sanitary arrangements, must precede the destruction of insanitary tenements. Dr. Hoops continued:—

> Starvation is not common in the tropics. More malnutrition results from the use of improper food, and badly prepared food, than from lack of food. The three great deficiency diseases, beri-beri, scurvy, and rickets, are all preventable by proper diet, plus sunlight in the case of rickets. . . . The prevention of dental decay will avert the majority of digestive troubles to which flesh is heir. . . . In Malaya the rural population, amongst whom under-milled rice is the staple food, and breast feeding is almost universal, have good teeth. Amongst city dwellers, many of whom eat overmilled rice, or overmilled wheaten bread, and whose babies are often bottle fed, a sound head of teeth is the exception. Medical inspection of schools here during the past two years discloses that nearly two-thirds of school-children in Singapore city are suffering from serious dental decay, while the proportion in our rural schools in Province Wellesley is under 5 per cent. Our large Eastern cities need pre-natal clinics, maternity hospitals, training centres for midwives, post-natal clinics, child welfare activities—dispensaries and sanatoria for the tuberculous—venereal clinics, school and dental clinics. But what will these avail, unless we remove the sources of evil—overcrowding and bad feeding? Good housing is a powerful agency in the suppression of that scourge of mankind—plague. In Assam the moving of inhabitants from infected houses to new quarters has greatly aided the diminution of kala-azar.

Dr. Hoops went on to deal specifically with malaria, ankylostomiasis, beri-beri, and other diseases, all of which were the subjects of many papers and discussions during the Congress. Three hundred medical men, representing 15 countries, were present, the Congress being the largest and most representative yet held. A painful interest attached to the acceptance by the Association of the invitation to hold its sixth congress at the Tokio Imperial University, for many of the members of the strong Japanese delegation which delivered the invitation had left their families in Tokio and could hear no news of how they had fared during the earthquake. Among the social functions of the Congress was the laying of the foundation-stone of the Singapore Medical School, by Sir Laurence Guillemard, Governor of the Straits Settlements. At the final meeting of the Congress the following resolutions were adopted concerning uniform port quarantine procedure in the Far East:—

1. The regulations of the International Convention of Paris, 1912, are not suitable for the proper carrying out of quarantine measures in the Far East.
2. The division so far proposed by l'Office Internationale d'Hygiène and the Office of Hygiene of the League of Nations do not alter this unsuitability.
3. That circumstances in the Far East demand a quite different quarantine procedure from that in Europe. It is

therefore desirable that a separate agreement should be drawn up to govern quarantine regulations in the Far East to allow of the necessary coöperation between the different Far Eastern countries. It is also agreed that a copy of this resolution be sent to all Governments of the Far East and the Office of the Health Committee of the League of Nations at Geneva, and l'Office Internationale d'Hygiène at Paris.

In regard to these proposals the Hon. Mr. E. A. Gilmore, head of the Health Service in the Philippines, had previously expressed the hope that the handling of the matter by the League of Nations Committee would not make it difficult for America to participate, and had suggested that a conference of the countries interested would be helpful. The Congress was felt to have been a great success, and the following week was spent by a number of the overseas members in touring the Federated Malay States and Penang.

PAINLESS MAXILLARY SINUSITIS SIMULATING PULMONARY TUBERCLE.

THE early diagnosis of pulmonary tuberculosis is of such fundamental importance that any febrile condition associated with cough and wasting must of necessity excite suspicion. It is a familiar fact to most physicians and laryngologists that pulmonary tuberculosis is often simulated both as to symptoms and physical signs by inflammatory conditions of the upper air passages, but it is open to question whether this fact is sufficiently generally recognised. An interesting paper by Dr. A. Lowndes Yates, which we publish in this issue of THE LANCET, should serve to draw attention to a special form of this problem—viz., maxillary sinusitis—especially in cases without empyema of the antrum and not associated with pain. Dr. Yates gives a brief résumé of the literature on the subject, and shows that since 1916 considerable attention has been paid to this question. He suggests that when the nasal protective mechanism fails and infective organisms reach the nose, in some patients the infection may stop short of producing empyema of the antrum and yet lead to reactive changes owing to the flow of pus into the pharynx and laryngo-pharynx. The delay in the removal of the infected mucus allows of toxic absorption, resulting in some cases in wasting and evening rise of temperature and night sweats. He describes in some detail the signs produced by such a condition. Apparently anterior rhinoscopy shows little or nothing, whereas posterior rhinoscopy may show very definite changes and more or less characteristic appearances may be seen in the pharynx and larynx. Dr. Yates finds that this condition may coexist with pulmonary tuberculosis, and in this combination the appearances are different. A point of interest and importance is that a patient with the painless form of maxillary sinusitis may be quite unaware of its existence, and may refer all his symptoms to his chest. Dr. Yates's observations would suggest that in any case in which cough exists with obscure signs in the chest, and in which repeated investigation of the sputum is negative, a careful examination of the nose and throat for maxillary sinusitis should be made. He gives such a clear description of the appearances found in this condition that his observations should be capable of easy confirmation or criticism. The subject is of special importance, as it may afford a means of excluding pulmonary tuberculosis without loss of time in some obscure cases, and lead to a more rapid restoration to health and comfort.

THE INCOME AND EXPENDITURE OF THE LONDON HOSPITALS.

THE annual statistical report for the year 1922 on the income and expenditure of 113 London hospitals, issued under the auspices of King Edward's Hospital Fund for London, has just been published.[1] The report is divided into five sections, each of which respectively gives in tabular form: (*a*) General particulars of the work done and the accommodation provided; an analysis of (*b*) the income, and (*c*) the expenditure; (*d*) the cost of working; and (*e*) group comparisons of the different hospitals. In this last section the hospitals are classified as (1) larger general hospitals, with and without medical schools; (2) smaller general hospitals; (3) consumption hospitals; (4) hospitals for women and children; (5) ophthalmic hospitals; (6) hospitals for epilepsy and paralysis; (7) cottage hospitals, and (8) lying-in hospitals. It is encouraging to note that in 1922 the total average number of available beds (12,421) in the 113 hospitals under review shows a net increase of 995 over the figures for 1913, although there has been a slight decrease since 1920. In-patients in 1922 numbered 162,149, a net increase of 17,511 over 1913. While the new out-patients in 1922 show a decrease of 48,000 as compared with 1913, the out-patient attendances have increased by 1,225,000. The average attendances of each out-patient were, in 1913, 3·5; in 1920, 4·3; in 1921, 4·2; and in 1922, 4·5. The income of these 113 hospitals (apart from special distributions) increased from £1,470,000 in 1913 to £2,401,000 in 1920 and £2,566,000 in 1921. In 1922 it decreased slightly to £2,398,000. It must be remembered, however, that the special distributions which are omitted from these figures included in 1922 £243,000 from voluntary sources—viz., from the first and second instalments of the proceeds of the combined appeal. It was part of the scheme of this appeal that for an agreed period the coöperating hospitals should suspend all independent appeals. It was anticipated therefore that, other things being equal, the income from voluntary sources would be below the normal if the proceeds of the combined appeal were excluded, and above the normal if they were included. The difficulties of the hospitals, as compared with conditions before the war, were produced by increase of expenditure and not by decrease of income. That expenditure now shows a substantial decrease: after having risen from £1,192,000 in 1913 to £2,784,000 in 1920, it fell to £2,776,000 in 1921 and to £2,572,000 in 1922. It is reassuring to observe that the greater part of this fall in expenditure since 1920 is not due to decrease in work but to reduction in cost. The report is a valuable document for all concerned in hospital management.

THE OTOLITH APPARATUS AND FŒTAL ORIENTATION.

As is well known, the internal ear is divisible into three parts, which subserve three separate and distinct functions: the cochlea serves for the perception of sound; the semicircular canals serve for the perception of movements of the head in space, or, more exactly, for the perception of acceleration of such movements; and the otolith apparatus for apprehension of the relative position of the head to the perpendicular, and also for the regulation of the muscle-tonus of the limbs, trunk, neck, and eyes. Our knowledge of the function of the otolith apparatus has recently been considerably advanced by the experiments of Magnus and de Kleijn, and it has been shown that, through reflex action from the otoliths, the various positions of the head in space influence the tonus of different groups of muscles of the trunk and limbs, and therefore the position of the body; the so-called "neck-reflexes," whereby alterations of position of the neck affect the tonus of the body-muscles, complicate these reactions, and it is probable that a whole series of similar reflexes exists which assist the animal in maintaining or in rapidly altering its posture. Dr. Ant. Precechtel, dozent in the Czechoslovak Aural Clinic of Prague, in a paper recently read before the Society of Czechoslovak Physicians, makes the suggestion, interesting alike to obstetricians and otologists, that these otolith reflexes play the principal part in regulating the position of the fœtus in utero, whereby some 97 per cent. of births

[1] Spottiswoode, Ballantyne and Co., Ltd., 1, New-street Square, London, E.C. 4. Price 2*s.* 6*d.*, post free, 2*s.* 9*d.*

occur as a head-first presentation. Dr. Precechtel argues that gravity will not explain this position, for the specific gravity of the fœtal head is found to be little if at all higher than that of the breech, while fœtuses experimentally floated in an artificial amniotic fluid were found to lower the pelvic pole. He criticises the so-called "accommodation" theories, by which the fœtus adapts itself to the shape of the uterus, or, by pressure of the active lower limbs against the unyielding pelvis, tends to turn the caudal pole upwards, and quotes the observation of Warnekros, who studied by skiagraphy the position of twins in a case of hydramnios and found that they kept a head-downward position in all postures of the mother. He supports his thesis by the observation that the otolith reflexes were obtainable in a large proportion of new-born infants, and by the significant fact that the vestibular branch of the eighth nerve myelinizes at the end of the fourth month, and considerably earlier than the cochlear branch or than the other sensory nerves. He has tried in vain to find corroboration by questioning the parents of congenital deaf-mutes as to abnormal presentations, but explains the lack of such abnormality by the fact that congenital defects of the vestibule are far rarer than those of the cochlea. It is an interesting speculation, but one very difficult of complete proof.

SYMBIOSIS AMONG ORCHIDS.

A REMARKABLE instance of symbiosis between flowering plants and fungi is afforded by the association between orchids and their micorrhizal fungus, and was dealt with by Mr. Somerville Hastings in his inaugural address at the recent sessional opening of the Middlesex Hospital. This important work, necessarily abridged in our own columns,[1] may now be read at length in the current issue of the *Middlesex Hospital Journal*. With one doubtful exception every orchid so far examined is known to be infested with at least one fungus. The importance of the fungus to the host plant is shown by the fact that orchid seeds removed from the pod under aseptic conditions and sown on sterilised soil are unable to germinate, and, at most, swell up and turn green and then die. If, however, the seed is planted upon soil in which the parent plant was growing, and which consequently contains the fungus, germination results and a normal seedling is produced. With the entry of a single filament of the fungus into an orchid seed rapid cell divison ensues, and the filament gradually advances into the seed passing from cell to cell; it is, however, not permitted to penetrate too far, the seedling being apparently able to exclude its entry into the stem and root. The young root thus enters the soil free from fungus, and only becomes infected subsequently by the penetration into it from the soil of a new filament. Throughout the life of the orchid the fungus is restricted to the region of the root, only one case being known, that of the Bird's Nest Orchid (*Neottia*), in which the fungal hyphæ are allowed to penetrate all through the plant. The orchids thus infested with micorrhiza derive nourishment therefrom, being able to digest the coils of fungus within their cells. The fungus was first isolated and cultivated outside the plant by Noel Bernard in France, and named by him *Rhizoctonia* from its close resemblance to *Rhizoctonia violacea*, which produces a form of potato disease. The Japanese orchid (*Gastrodia*) produces tubers buried under ground and resembling those of the potato; every year the tubers give off offsets, just as a potato does, without, however, producing leaves or flowers; in succeeding years these offsets become progressively smaller until finally they become incapable of further growth. If, however, the tubers come in contact with fungus threads of the well-known "stump tuft" toad-stool (*Armellaria mellea*) full grown offsets are produced, which next year develop flowers and presumably seeds. The beneficial effect of the infection of this orchid by the stump tuft fungus is the more remarkable since this fungus is known all the world over as a destructive parasite which often settles in large masses upon tree stumps; it would appear that in attacking the thickened underground root of this orchid it becomes worsted in the struggle, and is made to yield to the orchid some of the food stolen from the neighbouring trees. These observations appear to give the clue to the origin of micorrhiza, since it is suggested that the higher plants may have developed an immunity against fungi originally parasitic upon their roots, and that they have obtained control over them and actually derive benefit from them. According to Bernard the entry of a single filament into an orchid seed excludes all others, even though it be an attenuated form incapable of effecting germination; for this reason he concluded that the first infection immunises the seed and prevents further infection, a process which he compared with vaccination. The significance of these discoveries with regard to orchid micorrhiza have been fully appreciated by commercial orchid growers, and in this country more particularly the growing of orchid seedlings under aseptic conditions has been brought to a high state of perfection by Ramsbottom and Charlesworth.

[1] THE LANCET, Oct. 6th, p. 775.

INTRAPERITONEAL INJECTION OF ANTITOXIN IN DIPHTHERIA.

WE recently drew attention to a method of administration of antitoxin in diphtheria recommended by MM. Benhamou, Camatte, and Flogny,[1] of Algiers, which consisted in its injection by the intraspinal route. Dr. E. S. Platou,[2] of the Willard Parker Hospital and Research Laboratory, New York City Department of Health, now advocates the intraperitoneal route which is commonly employed for the injection of saline solution in infants. The new method was chosen owing to the absorptive power of the peritoneum which had been demonstrated by many observers. The technique employed was as follows: The patient was placed in the recumbent position with the arms and legs confined by a restraining jacket. The most suitable site is the linea alba just below the umbilicus. The skin is prepared with iodine and alcohol, and the area may be rendered anæsthetic by ethyl chloride. The antitoxin in doses of 10–14,000 units, with 8–10 c.cm. of saline, is introduced by gravity from an infusion bottle. The skin and subcutaneous tissues are picked up between the thumb and index finger and the needle is inserted obliquely, pointing upwards. After the antitoxin has penetrated the peritoneum it is allowed to flow into the peritoneal cavity. Dr. Platou has used the intraperitoneal method in a group of 12 severe cases, aged from 5 months to 14 years, in whom it was impossible to administer antitoxin intravenously. Ten recovered without complications, and two who were almost moribund on admission died, death being due in one case to laryngeal diphtheria and extensive broncho-pneumonia, and in the other to septic diphtheria and hæmorrhagic myocarditis. In both the peritoneum was free from any pathological condition. In none of the 12 cases was there any evidence of local discomfort from the injection. One patient presented slight urticaria on the seventh day, but none had any constitutional symptoms. Estimation of the comparative absorption of antitoxin by the intramuscular and intraperitoneal methods showed that within an hour of intraperitoneal injection the blood was appreciably antitoxic, and up to seven hours the absorption was about five times that found after intramuscular injection. The peak of absorption for the intraperitoneal method was about 36 hours, whereas for the intramuscular method it was somewhere between 48 and 72 hours. Dr. Platou regards the method as particularly applicable in advanced cases where suitable veins are lacking for intra-

[1] THE LANCET, June 16th, 1923, p. 1224.
[2] Archives of Pediatrics, September, 1923.

venous administration, and in moderately advanced cases in which intravenous injection is not considered necessary or advisable, but where more rapid absorption is desired than can be obtained by the intramuscular method. Further observations are required to confirm the value of the intraperitoneal method, but in the meantime it is obviously desirable in view of the possibility of infection of the peritoneum that the method should not be employed as a routine in all cases of diphtheria, but should be reserved for the worst cases, especially those in which the intravenous route cannot be employed.

THE PERIODICAL EXAMINATION OF LIFE POLICY-HOLDERS.

AT a largely attended conference convened by the Federation of Medical and Allied Services at 12, Stratford-place, Oxford-street, London, W., on Oct. 24th, an interesting discussion took place on the value of the periodical medical examination of the apparently healthy as a factor in preventive medicine. Sir Malcolm Morris presided, and representatives, both lay and medical, of the following societies were present, together with prominent members of the organisation of the Federation:—

Eagle Star and British Dominions Insurance Company, Standard Life Assurance Company, Prudential Assurance Company, Legal and General Assurance Society, Wesleyar and General Assurance Society, Australian Mutual Provident Society, National Provident Institution, Royal Exchange Assurance, Refuge Assurance Company, Atlas Assurance Company, London and Manchester Assurance Company, Sun Life Assurance Company of Canada, Royal London Mutual Insurance Society, Royal Liver Friendly Society, Commercial Union Assurance Company, Medical Sickness Annuity and Life Assurance Society, Coöperative Insurance Society, Hearts of Oak Assurance Company, Assurance Medical Society, Guardian Assurance Company, Public Health Advisory Committee, Clinical Research Association, Medical Sickness Annuity and Life Assurance Society, and the Sydenham District Medical Society.

In opening the conference the chairman pointed out that the Federation was a union of the various social activities concerned with health, and that it exists to promote the interests of the community as distinct from the interests of any professional section. The object of the conference was to serve the interests of the individual citizen—the policy-holder—while extending among the people the wise practice of seeking periodical examination or overhaul, in order that the early signs of departure from the standard of normal health might be detected. Already, he said, most sensible people visit their dentists regularly for examination of the teeth; why not of other bodily systems? Major L. G. S. Molloy, M.P., submitted a resolution stating: "That this conference approves the principle of periodical medical examination of life assurance policy-holders," remarking that such a principle, if carried out, would tend to the prevention of disease and would be a great advantage to the policy-holder if he did not have to pay for the examination. The medical profession would also benefit, but he feared that the insurance companies would be involved in expenses which they would not consider advantageous to themselves. Dr. Neville Spriggs, who seconded, was of opinion that periodical medical examinations would be for the benefit of all concerned. A long discussion followed as to the advantages or disadvantages to the public generally, and to the insurance companies, of such a principle as that advocated in the resolution, and a letter was read by Mr. N. Howard Mummery, Medical Director of the Federation, from Sir William Schooling, suggesting that the most beneficial and economical arrangement for both the original examinations for life assurance and for periodical re-examinations, would be the establishment of insurance medical institutes in the principal towns throughout the country. Finally, on the motion of Dr. Charles Buttar, seconded by Mr. Eric B. Nathan, the following resolution was unanimously carried: "That this conference approves the principle of voluntary periodical medical examination of citizens, and presses upon life assurance offices the desirability of the adoption of this course with the policy-holders."

THE CAMBRIDGESHIRE TUBERCULOSIS COLONY.

THE report on the Papworth Colony for 1922 is a beautifully illustrated work, printed by the members of this community. The outstanding event of 1922 was the formal opening of 31 new cottages, two hostels, and a nurses' home by Sir Alfred Mond who, in his address, referred to Papworth as the most wonderful institution of its kind in the world. He hoped that Papworth would be a model which would be copied in other parts of the country. Every page of this report is full of the author's vigorous optimism, and it is certainly to be hoped that the maker of Papworth, if not Papworth itself, will be used as a model and pattern by many imitators. Dr. P. C. Varrier-Jones, who further elaborated his ideas on village settlements on p. 912 of our issue of Oct. 20th, believes that all the progress made during 1922 has pointed to the soundness of the settlement idea. Of its success, if we are to judge by this report, there can be no doubt. It is more difficult to form a correct opinion of the reasons for this success. Dr. Varrier-Jones would have us believe that the principles on which he has worked are in themselves sound enough to warrant success. If this is so, and the problems of the Tuberculosis Settlement have been long enough studied for a mass production of Papworths to be attempted, such a procedure might be considered justifiable, provided adequate means are available. But if, as some suspect, the success of the first Papworth depends largely, and even mainly, on the personality of its founder, we should do well to delay creating replicas of Papworth till we can be assured of an adequate supply of replicas of its founder. To return to the first Papworth, it is worth noting that it is no longer in its infancy; 1922 was the seventh year of its existence and the fifth since the transfer to Papworth Hall. Cases of surgical as well as pulmonary tuberculosis are admitted, and no patient is refused admission, however advanced the disease, if accommodation allows. The account given of the various industries shows that the presiding genius of Papworth is blessed with a business instinct. He has come to the conclusion that chicken farming is an occupation suitable only for those with marked resistance to the disease. The notion that poultry farming consists of dispensing grains of corn at odd hours to hens pouring out a steady stream of eggs is not quite correct. Boot-making and repairing is a trade the profits of which are mulcted by the heavy charge of employing a canvasser for the collection and distribution of repairs. But portmanteau and other leather work has yielded an annual turnover of nearly £4000 at Papworth, and this industry seems to be established on a firm basis. The total number of inhabitants in the village is now 152.

PREGNANCY COMPLICATED BY HEART DISEASE.

Prof. W. Frey, of Kiel, has published in *Zentralblatt für Gynäkologie* for Oct. 6th a paper on the prognosis of heart disease complicated by pregnancy. His review of the literature of this subject shows only too plainly that though it has been discussed for many generations, anything but unanimity has been reached. He suggests that the observations of various authorities are contradictory, partly because the material on which their observations were based was not similar, and therefore not comparable. He also suggests that the material available in an outpatient department is more suitable for an investigation of this problem than the inmates of a hospital, and he has, accordingly, conducted examinations of

the cardio-vascular system of 1000 consecutive cases coming to his gynæcological out-patient department in 1917–18. In 49 cases definite valvular disease was found, but only one of these 49 women died during pregnancy as the result of heart disease. Only 32 of these women were traced two or four years later, when it was found that five had died. But it was very doubtful if any of these deaths were due to pregnancy. Prof. Frey has found that the expectation of life for men and women suffering from heart disease is practically the same. For women the average duration of compensation was 12 years, and for men it was 13. Necropsies told the same tale. There were very few cases in which the cause of the death of patients suffering from heart disease could be traced to pregnancy. Prof. Frey does not subscribe to the opinion that aortic disease is more serious than mitral disease in pregnant women. The prognosis depends, in his opinion, mainly on the vitality of the muscles of the ventricles. It does not so much matter whether the mitral or the aortic valve is involved as whether the disease is severe and acute or not. Among 29 cases of valvular disease examined post mortem there were as many as 24 in which signs of acute disease were found. This observation suggests that death from valvular disease of the heart is usually due to an acute exacerbation of the infectious process rather than to the purely mechanical factors associated with endocarditis. With regard to treatment, Prof. Frey classifies his cases according as pregnancy is associated with (1) recent inflammatory disease of the heart; (2) heart disease inadequately compensated, but not showing signs of active inflammation; and (3) compensation of the heart disease. The correct procedure in the third class is obvious; pregnancy need not be interrupted. But in the first class Prof. Frey advocates interrupting pregnancy whatever stage it has reached, whether the patient be a primipara or multipara, and even when there is satisfactory compensation. As a guide to the detection of active endocarditis he recommends taking the temperature in the rectum, and noting whether or not the patient is subject to tachycardia even at rest. The choice of procedure to be adopted in his second class of case is a difficult matter, but he is in favour of pursuing a conservative course as long as possible, in the hope that rest of body and mind and the administration of such drugs as digitalis may restore compensation and enable the patient to go to term.

THE MORISON LECTURES.

To a Scottish doctor must the credit be given of first instituting in this country special lectures on the diseases of the mind, and that at an early date when the conception of mental disease had barely advanced from the definition: "true madness, what is't, but to be nothing else but mad?" In 1823 Dr. (later Sir) Alexander Morison gave the first lecture on mental disease in Edinburgh. Five years previously he had studied under Esquirol in Paris, together with two or three eminent compatriots, for owing to the "auld alliance" Scotsmen even at that time were regarded in France with a certain friendliness. So impressed was Morison with Esquirol's teaching that on his return he made a strong endeavour to have a lectureship or professorship on this subject instituted in Edinburgh. One of his proposals was that the visiting physicians at Morningside Asylum—which had recently been built to supersede the barbarous city Bedlam—should deliver the lectures. This proposal was not adopted, but so keenly did he realise the importance of his subject that by a grant of private property to the Royal College of Physicians of Edinburgh he founded a lectureship in perpetuity, and for the next 30 years he or his son lectured annually. This year the centennial course of the Morison lectures was delivered in the Royal College of Physicians of Edinburgh on Oct. 15th, 16th, and 17th by Dr. Alexander Blackhall-Morison, his grandson. The subject of the course was, fittingly, a review of the progress of neurology, psychology, and psychiatry during the century since the foundation of the lectureship. In sketching the progress of neurology, Dr. Blackhall-Morison made a preliminary reference to the previous work of Whytt on reflex actions, to Haller's on organic action, and to the influence of Bichat as an interpretive anatomist, followed by the epoch-making experiments of Charles Bell and Magendie on the differing functions of the nerve-roots. The work of John Abercrombie, philosophical and medical, was referred to, and Gaskell's morphological investigations were especially dwelt upon. He then outlined the rise and progress of embryology, and the work of von Baer, Kölliker, His, Balfour and others was referred to. The results of the experimental work of Flourens, Marshall Hall, the Webers, Claude Bernard, Brown-Sequard, Schiff, and Ludwig were given, and the localisation of cerebral function by Fritsch, Hitzig, and Ferrier discussed, together with the clinical anticipation of such by Hughlings Jackson. The clinical discoveries of Todd, Duchenne, Charcot, Romberg and others of the German school were assessed, and the lecture closed with a consideration of the modern neural surgery of such pioneers as Horsley, Macewen, and Cushing. The second lecture dealt with psychology as a biology, and the growth of mental philosophy in the Scottish school was sketched. Dr. Blackhall-Morison considered the work done on mental faculties by Gall, Combe, and other phrenologists in the localisation of mental faculties, described the localisation of the special senses, and discussed the origin of language. Mind, he contended, was a living organism not a neural habit, and the importance of the persistence of the ego in general, and of the human ego in particular, was dwelt upon. The claims of the new psychology were examined and the place of judicious psycho-analysis in practice indicated. In the third lecture, the history of psychiatry from the end of the eighteenth century was outlined and the work of Haslam, Pinel, and Esquirol especially mentioned. In dealing with the ætiology of mental disorder, the lecturer estimated the influence of bacteriology and endocrinology, and special reference was made to the work of Mott.

The supreme importance of the care of the mind is becoming widely recognised among physicians, and the importance of early and adequate treatment of mental disorder is at last receiving some measure of consideration. In this connexion a paper by Dr. J. C. Porter Phillips[1] on the early treatment of mental disorder deserves attention. Asylum reform is going hand in hand with advancing knowledge, and special lectures on mental disease now form part of the curriculum in every medical school.

Sir Humphry Davy Rolleston has been appointed Physician-in-Ordinary to the King in the room of Sir James Reid, deceased, and Dr. Edward Farquhar Buzzard has been appointed Physician Extraordinary to His Majesty.

THE Nobel prize for medicine for 1922 has been divided between Prof. Archibald V. Hill, University College, London, and Dr. Otto Meyerhof, professor of physiology at Kiel University. Prof. Hill has, since 1910, been engaged on research on the formation of lactic acid in muscle during exercise, and in particular, its removal on recovery from fatigue, a continuation of the work done by Sir Walter Fletcher and Prof. F. G. Hopkins in 1908. As a mathematician and a physicist, Prof. Hill introduced into his investigations a totally different physical technique to that employed hitherto. Prof. Meyerhof, a close personal friend of his co-medallist, has pursued a similar course of research. The prize for 1923 has been divided between Prof. J. J. R. Macleod, F.R.S., and Dr. F. G. Banting for their work on insulin.

[1] THE LANCET, Oct. 20th, 1923.

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XLIII.—TREATMENT OF BLEPHARITIS AND STYES.

BLEPHARITIS, by which is understood a chronic marginal inflammation of the eyelid, includes several diverse conditions which, although similar in cardinal signs (redness and thickening of the lid margins) and symptoms (burning and itching of the lids, sensitiveness of the eyes to light, heat, and dust), differ in their ætiology, pathology, clinical cause, and prognosis. Certain rules applicable in the treatment of blepharitis in general can, however, be formulated. It is important to remember that obstinate cases of chronic blepharitis are often associated with errors of refraction, especially hypermetropia and astigmatism. This is probably because congestion of the lid margins and a consequent lowered resistance to infection result from constant straining of the eyes. These errors must be corrected, great care being taken to include especially small astigmatic errors. Glasses worn constantly not only eliminate strain, but protect the eyes from irritating influences, which may cause or at least aggravate the disease. Ill-health, insufficient nourishment, unhygienic conditions, and neglect of personal cleanliness often constitute important factors in keeping up a chronic blepharitis; obstinate cases are common in hospital clinics, and comparatively rare among private patients. The occurrence of obstinate blepharitis as the result of a distant focal infection has been reported. Blepharitis accompanied by lesions of a similar nature affecting the eyebrows, face, and scalp must be regarded from a dermatological standpoint, the lid condition being part of the general skin affection.

Inflammation of the lid margins necessarily involves the marginal part, at least, of the conjunctival sac, and is thus invariably accompanied by a conjunctivitis. But in many cases a conjunctivitis is the direct cause of the blepharitis, an eczematous condition of the skin being induced by constant lacrymation and discharge of muco-pus. This is especially common in cases of chronic eczematous or phlyctenular conjunctivitis in children, or in catarrhal conjunctivitis caused by the Morax-Axenfeld diplobacillus. Treatment must here be directed towards removal of the conjunctival disease and of conditions likely to cause it—e.g., stenosis of the lacrymal passages, eversion of the punctum, &c.

Massage of the lid margins is often a useful adjunct to treatment, especially in chronic cases, ensuring the emptying of the infected secretions of the follicles and glands. It is carried out by means of a round-ended glass rod, which is gently rubbed along the inner conjunctival surface of the edge of the lid, support being given to the latter by the thumb, held against the outer skin surface. This is apt to be a painful proceeding, and must be done with gentleness.

A *bacteriological examination* of secretions from the eyelids and conjunctiva by direct film and culture, affords valuable information in many cases. For example, presence of the Morax-Axenfeld diplobacillus indicates the use of zinc solution or ointment.

The *onset* of blepharitis usually occurs in childhood, when early and persistent treatment is of the highest importance. In untreated cases the lid margins may become permanently altered, owing to destruction of some or all of the eyelashes and the formation of scar-tissue, making a complete cure impossible. Eyelashes which escape destruction may become stunted and distorted and rub against the cornea, causing intense pain and photophobia, and giving rise to ulceration of the cornea and interference with vision. The lid margins may become thickened and rounded and ectropion may result.

Differential diagnosis from uncomplicated conjunctivitis in cases with dried crusts or scales in the neighbourhood of the eyelashes is made after removal of the crusts, the lid margins being normal in the last-named condition and always red, often thickened and sometimes ulcerated, in the presence of blepharitis.

Local Treatment of the Lid Margins.

In general the essential measures are: (1) A careful cleansing with a detergent solution to remove all secretion and crusts, with removal of loose lashes, followed by (2) the application of antiseptic ointments with gentle friction. Sod. bicarb. in warm 3 per cent. solution is the most generally serviceable cleansing solution. It has little or no germicidal power, but is non-irritating and softens the hard crusts of dried secretion. Ointments should be used twice daily; in the morning the greater part is wiped off again, but overnight a thick layer should remain on the lid margin. Antiseptic ointments are useful, both because of their antiseptic properties and of the protection afforded to the inflamed part by the greasy excipient. It is useless to apply ointment until all crusts have been removed. Antiseptics with highly irritating properties must never be prescribed, as they tend merely to aggravate the trouble instead of effecting a cure. Yellow oxide of mercury, so widely used in ointment form, is a striking and common example of this mistake; owing to its irritating action it often fails to effect a cure. Ammoniated mercury (1 per cent. in vaseline) is preferable and is one of the most generally useful drugs.

(3) Silver salts in solution are of sovereign use, especially in ulcerative blepharitis. Silver nitrate, in 1 per cent. to 2 per cent. solution, or some of the proteid compounds of silver (e.g., protargol 10 per cent., argyrol 20 per cent.) may be employed. Most forms of the disease are extremely obstinate, and the length of time during which treatment must be continued, as well as the chances of a permanent cure, are usually inversely proportional to the duration of the disease. In the treatment of milder cases vaccines are rarely used, but are undoubtedly beneficial in certain obstinate cases, especially those of staphylococcal origin. In my experience those cases which benefit by this treatment require its continuation. Directly the injections are discontinued the lid inflammation exacerbates only to improve under a fresh course of injections.

Common Clinical Varieties.

The common clinical varieties of blepharitis, in all of which correction of refractive errors is a necessary preliminary to any form of treatment, are:—

(1) *Simple chronic hyperæmia* of the lid margins without appreciable thickening, usually affecting both eyes and associated with sensitiveness of the eyes to dust, glare, tobacco-smoke, and strain. Treatment: Appropriate glasses must be prescribed, slightly tinted if necessary.

(2) *Squamous blepharitis* usually affects both eyes. The lid margins are hyperæmic, and slightly but evenly thickened, and the skin surrounding the eyelashes is covered with fine whitish scales consisting of dried sebaceous secretion. There is no ulceration. The condition is a seborrhœic one, and is often extremely resistant to treatment. Treatment: Careful removal of the scales and loose lashes, twice daily, with sod. bicarb. solution. Massage of the eyelids, with expression of the contents of the meibomian glands, and subsequent application of an ointment. In the diplobacillary cases the following is most effective: Ichthyol ammoniate, 0·2 part; zinc oxide, 5 parts; vaseline, 15 parts; and the conjunctival sac should be irrigated with a solution of zinc sulphate (¼ to 1 per cent.). For the staphylococcal cases ammoniated mercury ointment is the most useful; other ointments (e.g., salicylic acid, 1 per cent.; resorcin, 1 per cent.; ichthyol, 1 per cent., and simple boric ointment) may be tried. Squamous blepharitis does not give rise to deformity of the lid margin.

(3) *Ulcerative blepharitis* may affect one or both eyes. The lid margin is red and unevenly thickened. Hard crusts of dried secretion surmount the lumpy

thickenings and cling tenaciously to the eyelashes; on their removal ulcerated surfaces, which bleed readily, are exposed, and small abscesses may also be present; usually *Staphylococcus aureus* may be found. This, the severest form of blepharitis, is most common in children, and is a frequent sequela of measles. If allowed to persist, destruction and scar formation result. Treatment consists of thorough removal of all crusts twice daily with sod. bicarb. solution, and of loose eyelashes with epilation forceps; application of 2 per cent. silver nitrate solution once a day to the ulcerated surfaces with a cotton-wool wrapped probe, or in less severe cases repeated friction of the edges of the lids with a camel's-hair brush dipped in 10 per cent. protargol solution; subsequent application, twice a day, of ammoniated mercury ointment. Attention must be paid to the general health.

(4) *Eczematous blepharitis*, in conjunction with and secondary to a conjunctivitis. The skin of the lid margins is reddened and excoriated. Treatment: In addition to that appropriate to the conjunctival condition, the edges of the lids should be kept greased with ointment as a protection against conjunctival discharges. Boric ointment, ammoniated mercury, or ichthyol and zinc in the diplobacillary cases, may be used.

(5) In a true *sycosis* of the eyelashes the lid margins are swollen, and show numerous small abscesses in the hair follicles, an eyelash appearing in the centre of each point of pus. The eyebrows are usually affected as well. This condition is very intractable, and must be treated by daily epilation of the lashes, evacuation of the abscesses, and the application of mercury or other ointments.

Styes.

Styes are of two kinds, external (the common variety) and internal. The former is an acute pyogenic infection of an eyelash and its sebaceous glands, the latter a similar infection of a meibomian gland. Both kinds are accompanied by œdema, often intense, of the eyelids. The external stye, which appears as a painful swelling on the anterior border of the lid, may sometimes be aborted by extraction of the eyelash and application of a pointed match dipped in pure carbolic, followed by frequent bathing with very hot boric lotion. This is best done with a sponge stick made by tying a piece of lint round the handle of a wooden spoon. "Blind" styes should be treated in this way. If the stye points it should be opened under local anæsthesia, produced by subcutaneous injection of novocaine solution round the base of (not into) the swollen area and fomentations applied. Recurring styes often disappear when errors of refraction are corrected. Sometimes they indicate lowered resistance to staphylococcal infection, when vaccine treatment may prove beneficial. The lids should be cleansed nightly for several weeks with sod. bicarb. solution, followed by application of ammoniated mercury ointment, in order to check the formation of fresh styes.

Internal styes are comparatively rare—they point on the conjunctival surface, and must be opened there, and fomentations and hot bathings applied. Occasionally the acute stage passes off without discharge of pus, a chronic meibomian cyst resulting, which can be got rid of in the usual way by incision from the conjunctival surface, and scraping with a sharp spoon.

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Recent articles in this series are:—

XXXVI. Menorrhagia in Young Women without Gross Lesion, by Dr. J. S. Fairbairn. XXXVII. Chronic Arthritis, by Dr. W. H. Wynn. XXXVIII. Glycosuria in Pregnancy, by Dr. G. Graham. XXXIX. Flat-foot, by Mr. Blundell Bankart. XL. Medical Treatment of Early or Suspected Duodenal Ulcer, by Dr. J. A. Ryle. XLI. Retention of Urine, by Mr. J. Swift Joly. XLII. Treatment of the Neurotic, by Dr. Kinnier Wilson.

Special Articles.

POINTS FOR CONSIDERATION IN MOTOR-CAR SELECTION.

(BY OUR MEDICAL MOTORING CORRESPONDENT.)

AT the International Motor Exhibition now being held (Nov. 2nd to 10th) by the Society of Motor Manufacturers and Traders at Olympia, Kensington, some 522 stands have been allocated to exhibitors and about 140 makes of cars are on view. The would-be purchaser will have plenty from which to choose. To extract the grain from the chaff will be the difficulty.

As user of cars for professional purposes the medical man's chief concern is reliability combined with simplicity. Most of us do not buy cars to replace them 12 months hence. We usually purchase "for keeps" and do not propose considering a new car for anyway three or four years. Thus the car's family history becomes a deciding factor. Some of the latest manufacturers may not weather what, with the present severe competition, may prove a stormy season. This may mean difficulty in procuring replacements if the makers are not in existence next year. Thus the advantage in selecting old-established firms. Another guiding point is the second-hand value of the car in view; a high second-hand value is a good test of a car's quality.

The coach-work is, of course, a matter for individual choice. For protection from wet and cold and quick conversion into an open car, the all-weather body will appeal to many. Instead of glass windows the type with curtains fitted to and opening with the doors, as originally brought out by the Standard Motor Company, is now justly popular and can be supplied with most cars.

The Engine and Transmission Design.

The important point is the engine and transmission design. What constructional factors should influence selection? For the larger cars four cylinders are almost universal and are certainly desirable; more is a luxury. For the doctor's purpose 12 h.p. is ample, even in hilly districts. It has, too, the advantage of economy in tyres and a moderate tax. The question of the type of engine valve is debatable. The overhead, operated by push rods and rockers, or an overhead cam-shaft has many advocates. It is rather more complicated and means more trouble when dismantling for decarbonisation is needed. With correct feeders the occasional needed adjustment is simple enough, yet many owner-drivers ignore this need and suffer accordingly. Side-by-side valves are easier to get at and have the advantage of simplicity. They probably do not conduce to as much power in a high-speed engine. Their retention in such excellent cars as the Fiat and Unic is an argument in their favour. The taxi-driver usually knows what he talks about. Like ourselves, he is out for simplicity and reliability. He says he gets it on the side-by-side valved Unics and Fiats.

Personally, I do not mind giving my mount a little attention, perhaps that accounts for my partiality for the overhead kind. With a good maker whatever form is fitted as standard can, I think, be accepted with confidence. With modern practice, the old axiom, "For each throw a crankshaft bearing" is obsolete. With three bearings as now designed, whip does not occur. Even two bearings on small 4-cylinder engines are found to be quite satisfactory. Connecting rods are now often lined with anti-friction metal direct. Many engines run for 40,000 miles before the big ends need attention; when they do, then the advantage of removable lined brass or gun-metal bearings is discovered. Their absence means more trouble and expense. The lighter high-speed

small engines usually develop a knock under considerably less than the distance just mentioned, so anyway for these the brass-lined bearings are preferable. War aeroplane experience introduced the aluminium alloy pistons. They lighten the reciprocating parts and thus ensure smooth running. Use on car engines has certainly proved the value of this innovation. On the larger engines the provision of four piston rings is an advantage. It means better compression, and what is as important, less passage of oil into the combustion chamber. If much gets into that compartment preignition is bound to occur, and that means the trouble of decarbonisation.

A slipping as well as a fierce clutch is a misery. Either the cone or single plate lined with Ferodo or leather is satisfactory. In addition this type is simple to adjust or can be. I say this feelingly as on some cars clutches are introduced in such a way that their removal to re-line may cost as many sovereigns as the shillings expended on the lining. Ease is also essential to increase the tension of the clutch spring or springs. The arrangement on the Overland in this respect struck me as ideal. A good many clutches are covered in; it is well to protect them thus. It is, however, abominable to try and take out split pins and increase the tension of a clutch-spring by tightening nuts, through a trap-door, say, three by two inches, to get at which, in addition, calls for acrobatic contortions. Many gear-boxes are bolted directly on to the engine. The advantage of this unit construction is perfect alignment, and the elimination of a universal joint between the gear-box and engine. Still on many this causes the complications I have just mentioned—difficulty in dismembering the clutch. Everything in this world, including the automobile, is a compromise.

Forward Gears.—Fabric Universal Joints.

The matter of three or four forward gears is unimportant, except that four means an increase in production cost, and therefore purchase price. A geared-up fourth speed permits of faster running on the level, otherwise there is little advantage. Regarding the position of the change-speed lever, use soon makes either the side or the central seem preferable; the former means more room for the front passenger, the latter permits of a door and thus a means of exit on the driver's right.

Fabric universal joints for the transmission shaft, as used on the Standard and Waverley cars, are becoming popular. They have the advantage of neither needing lubrication nor of becoming noisy. For the final drive spiral gear has much in its favour, though on some cars the worm is still used. A few cars, such as the small Talbot and the Rhode, are constructed without a differential. It does not seem to cause any difficulty in driving or turning, though it is suggested that the skidding, which must result, may cause excessive tyre wear. During the war, in France, there was at one time a shortage of spider pinions for the differential of the Rover and Sunbeam cars used at the front. They were urgently required, so the differential was temporarily done away wth. The result, as might be expected, in cars of that size (they were ambulances) was not satisfactory. Most modern carburetters give satisfaction. The Zenith, S U, Solex, and Claudel certainly deserve mention, especially the latest type of the first-named. The points to make sure of are accessibility to the strainer and jet or jets. I have seen a car, on which the shield had to be dropped to get under the carburetter to remove the jet, or if this was not done, the exhaust manifold had to be disconnected to get the carburetter off. For simplicity the gravity petrol tank under the bonnet is impossible to beat. For convenience of space a pressure-worked rear tank is often employed. It is efficient, but I must confess to a preference, as already mentioned, for the gravity one under the bonnet. The Autovac, as used on the "tanks," is reliable, provided the owner does not neglect to keep it clean, otherwise trouble not only may but is bound to occur. For ignition the results are equal with either coil or magneto. The former, now that generators are fitted and keep the accumulators fully charged, is quite good. The objection is that it is not much use charging accumulators if the acid level is not maintained. Those who neglect to do so rather unjustly condemn the coil. I believe this is the reason the Talbot-Darracq have changed back to the magneto. The Wolseley favour the coil. A self-starter is now a sine qua non. It should be fitted so that if the pinion jams it can be removed without too many awkward postures.

On the cheaper cars thermo-syphon cooling is popular. Provided the water pipes are of sufficient size, it is satisfactory, but I must say I prefer a pump-propelled circulation, and one too with (on the larger cars anyway) a thermostat attachment, which maintains a constant water temperature. As to air-cooled engines, some are satisfactory, though my feelings are in favour of the water-cooled. The engine lubrication is now excellent on nearly all cars; it is by pump with an indicator on the dash to show that the oil is circulating, and a rod to show the depth in the sump. For the chassis I should insist on lubricators fed by a grease gun; it saves much cleansing of hands and gloves.

Brakes, Springs, and Tyres.

Many brakes now both operate on the rear axle drums. This method seems preferable to having one on the cardan shaft and the other on the rear wheels. The transmission shaft brake, though efficient, is not healthy for the life of that part. Front wheel brakes, when adjusted and kept in adjustment, with all the moving parts lubricated, are ideal, as was pointed out in THE LANCET of Nov. 14th, 1908, when the Allen-Liversidge original type was tested. The Buick are now fitting them as standard, but as yet few of the well-known British manufacturers have done so, though some fit them to order. For ordinary use I question their need, anyway they are not a necessity.

The question of comfort in driving depends on the springing of the cars; cantilever, three-quarter, and half elliptic all have their advocates. I believe that the first two give the best results, provided that the springs are kept lubricated. Any type that as a result of wet and mud has become rusted into a solid piece is inefficient. Some protective covering, such as the Duco leaf-spring gaiter, does enable a spring to function, by allowing each component leaf to move on its neighbour and thus absorb road shocks before they reach the car. The Gabriel snubber is a satisfactory device to eliminate rebounding. It is fitted as a standard on the Morris-Oxford car.

What looks like a promise of an increase of comfort is shown by Messrs. Michelin and Dunlop in the shape of larger tyres, which are constructed for use with a very low pressure, 16 to 20 lb. The cushion effect is said to be marvellous and with rebound snubbers may do away with all need for shock absorbers. The question to be solved is whether, by increase of road friction, they will lead to a larger petrol consumption. The point of retention in position has been met by the Dunlop firm, by an alteration in the method of attachment. They are, of course, still somewhat in the experimental stage.

Some Suitable Cars.

Among cars suitable for inspection can be named, among the light two-seaters at £160 to about £200, the Austin, Citroen, Gwyne 8 h.p., Hands, Humber, Morris-Cowley, Rhode, Standard, and Wolseley. For larger cars at from £400 to £500, the Angus-Sanderson, Armstrong-Siddeley (£360), Austin (£450), Calcott, Clement-Talbot, Crossley (a wonderful 15 h.p. at £420), Cubitt, which is a powerful mount at £340, Talbot-Darracq, De Dion, Fiat (now reduced to £420), Humber, Morris-Oxford, Renault, Standard, and Swift, while those who do not mind going to a little higher price should certainly look at the Sunbeams, Rovers, and larger-powered Wolseley; the 14 h.p. of the latter make seems very good value, as well as the Rover. For a really good American, which is

now built in England, the Overland in the neighbourhood of £300 is a good proposition. Among other American cars the Dodge and Durant are worthy of attention, as well as the Maxwell at £330, the Buick at £375, and the six-cylinder Studebaker, made in Canada, at £385.

PRIVATE WARDS AND BEDS IN THE LONDON HOSPITALS.

IN view of the professional and public interest aroused by recent announcements of the institution of paying beds in some of the larger metropolitan hospitals, and of the difficulty sometimes experienced by practitioners in actually placing an individual patient in such beds, we have endeavoured to ascertain from the secretaries of various hospitals under what conditions paying patients are admitted. The answers received are summarised in the table given below, and show that at Guy's, St. Thomas's, and King's College Hospitals certain arrangements are made in this direction; as also at the Royal Northern, the Hampstead General, the three hospitals controlled by the Seamen's Society, the Bolingbroke, the Willesden General, and two or three others.

There are no private wards for paying patients of moderate means in the following hospitals: St. Bartholomew's Hospital, London Hospital, Middlesex Hospital, St. George's Hospital, St. Mary's Hospital, Royal Free Hospital, University College Hospital, Prince of Wales's General Hospital, Hôpital et Dispensaire Français. The West London Hospital and the Westminster Hospital are now making arrangements to provide accommodation for paying patients, and the Miller General Hospital hopes to do so in the new wing next spring. The Italian Hospital has the matter now under consideration, and at the Royal Free Hospital it is hoped in the future to provide such accommodation on an adjoining site.

Interesting Points.

Many interesting questions arise in connexion with private beds in general hospitals, especially in view of the contributions towards maintenance now asked from patients in general wards of many hospitals if they are judged able to afford them. Separate payment to members of the staff appears to be a fairly general feature, and concessions in the way of more visitors and extra or daintier food are allowed in certain hospitals. Of the undergraduate teaching hospitals Guy's, St. Thomas's, and King's College Hospital have private beds more or less attached to the hospital, and the Royal Free and Westminster hospitals hope to provide such beds in the future. At Guy's and St. Thomas's the private ward or block is a separate entity, with a salaried medical officer whose services are available free to the patients. Students from the medical school are excluded from these wards, and the food and cooking are on a different plan from that of the hospital. At King's College Hospital reference to the table given below will show that an attempt at grading is made, which may at

Name of hospital.	Private wards (p.w.).	Cubicles.	Private rooms (p.r.).	Total beds.	Fees in guineas per week.	Extra fees for staff, if any.	Visitors.	Remarks.
Guy's Hospital.	1	24		24	5	Salaried R.M.O. gives services free of charge. If necessary member of hon. staff is consulted and fee for treatment or operation arranged privately between him and patient. No proportion of maintenance fee is paid to staff.	Daily 9–12 and 2–5 instead of twice weekly.	Students in medical school are not admitted to this ward for teaching purposes. Separate kitchen and kitchen staff.
St. Thomas's Hospital (St. Thomas's Home).		40		40	5	R.M.O. attends free. Consultation paid for by patient.	Daily 3–5.	Food is better in home than in general hospital.
King's College Hospital.	3		13	44	p.r. 6 to 8, p.w. 4½ to 5.	Payment to be made to members of staff is arranged by house governor on admission of patient.	Daily instead of twice weekly.	Slight difference in evening meal provided for private patients. Patients in p.r. are not available for purposes of demonstration to students. In case of patients in p.w. the member of staff attending them may be accompanied by his students.
Royal Northern Hospital.	2	46	18	66	p.r. 4 to 6, p.w. 2 to 4.	Patients in p.r. pay moderate fees to consultants, who must be on staff of recognised hospital, but not necessarily the Royal Northern.	Sundays 1.30 to 3. p.r. 5–6 daily. p.w. 5–6 twice weekly.	Special wards primarily intended for residents in North London. Two beds for paying patients available at the Reckitt Convalescent Home, Clacton-on-Sea.
Hampstead General and N.W. London.	3		6	20	p.r. 5, p.w. 3.	Fees to staff by arrangement.		Patients in p.r. have evening meal, in place of cocoa, milk, or bread-and-butter.
Dreadnought Hospital.	4			8	From 3.	Any amount paid additional to cost of maintenance, approx. 3 gns.		Practically no difference in food served to paying and non-paying patients, but table-napkins, tray-cloths, bed-tables, &c., are afforded to the former.
Albert Dock Hospital.	2			3	,,	,, ,, ,,		,, ,, ,,
Hospital for Tropical Diseases, Endsleigh Gardens.				30	From 5.	Patients who can afford it pay staff a weekly fee.		,, ,, ,,
Willesden General Hospital.				15	From 3½ to 6.	By arrangement with doctor attending, who need not be attached to hospital staff.		
Bolingbroke Hospital (Wandsworth).	2		4	12	p.r. 5 to 6, p.w. 4.	R.M.O. attends free, but a fee is payable to members of hon. staff.	Daily.	Patients are given special consideration in the matter of food; late dinner is provided.
Queen Mary's Hospital for the East End.			4	4	5		No fixed times.	Food identical with that served in rest of hospital.
Hospital of St. John and Elizabeth.			10	10	From 8.	Paid direct to staff by patients.		Patients attended by their own medical men.
St. Andrew's Hospital (Dollis Hill).			9	45	p.r. 8, p.w. 2½ to 4.	Patients in p.r. arrange fees with med. staff. Patients in wards pay reduced fee to med. staff.		No patient is received except on the recommendation of his own doctor. Patients unable to pay 2½ gns. are received free as far as is possible.

some time cause discontent either among the patients or in the medical school. Patients who pay 8 guineas a week in private rooms (special treatment is extra, such as massage 10s. an hour, X ray treatment from 3 guineas a week, barium meal 5 guineas) are immune from the attendance of students. Those in private wards may apparently give or refuse their consent for the member of the staff attending them to bring his students to their beds on a round. The wording of the rule on this point suggests that in any case these patients will not be available for examination by students except in the presence of their chief, but only for demonstration purposes with their consent. Inasmuch as the wards opened for private patients at King's College Hospital appear to be those which were previously closed for lack of funds, no present hardship for students exists. However, admission of the principle that patients, who already pay maintenance fees, may by paying an additional guinea or two per week acquire the right to refuse examination by students has its dangers.

Another interesting point is that of telephonic inquiries about patients, which are not answered at King's, nor, indeed, at most large hospitals. A patient who pays a fee of 8 guineas a week, which is not in excess of that asked in many a nursing home, may dislike being deprived of this facility on his friends' behalf. Against this, however, is the feeling of security which the nervous patient in a large hospital well staffed by resident house surgeons and physicians must feel, compared with the anxiety often experienced in a nursing home without a resident doctor. We believe that, on the whole, patients of moderate means will be glad to avail themselves of the opportunity to go to a hospital when they are ill, and that their advent will do much to raise the standard of comfort in the general wards by calling attention to the therapeutic value of properly served, hot food, of permission to smoke, and of other amenities which may increase slightly the cost of administration, but will give quite disproportionate amount of satisfaction to patients.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Insurance Position in Glasgow.

ABOUT 250 medical men, including representatives from Lanarkshire, Ayrshire, and Stirlingshire, attended a meeting held on Oct. 23rd in Glasgow. The report of the local Medical and Panel Committee was considered, and Dr. H. G. Dain, Birmingham, outlined the history of the dispute and its present position. A short statement was then made by Dr. J. R. Drever, the Scottish secretary of the B.M.A. The meeting unanimously decided: (1) To support the Insurance Acts Committee; (2) to put into force immediately the collective bargaining scheme. By the 28th the resignations of 86 per cent. of panel practitioners were in the hands of Dr. J. G. McCutcheon, the secretary.

Anderson College of Medicine: Opening Address.

At the opening of the winter session of the Anderson College of Medicine a lecture was delivered by Sir Ronald Ross. The lecturer took as his subject the Management of Medical Research. He briefly recapitulated the advances made during the past 20 years in the field with which his name is associated as pioneer; advances which rendered possible, by efficient hygiene, the construction of the Panama Canal, and the successful campaign against malaria conducted by Malcolm Watson in the Federated Malay States. These triumphs were achieved by the piecing together of much painstaking investigation; and that not only, as the lecturer insisted, in medicine alone, but also in the sister sciences of physics, chemistry, and zoology. Sir Ronald Ross went on to say that the value of combined investigation of this nature was for centuries unrecognised. The earlier fundamental discoveries in the history of the world were made by what he called "private enthusiasts"—men whose living was often precarious, and not infrequently attained by the practice of a popular but remunerative offshoot from their life's work. Thus Kepler: "Mother astronomy would surely starve but for the earnings of her daughter astrology." Subsidised research began with the observatory of Tycho Brahe, which, although no new principle emanated from its walls, yet supplied the data from which the wider perspective of Kepler and Newton revolutionised the science. Research as a profession had come tardily and incompletely into its own during last century, with the founding of the Pasteur and Jenner Institutes, and at the present time not only medicine, but also both pure and industrial science supported skilled investigators over all the world. In this country the Government had accepted the principle with the founding of the Medical Research Council. Regarding the conduct of purely medical research, Sir Ronald Ross distinguished two schools of thought. One, "the Bulls," would have all available money spent upon the equipment and maintenance of bodies of skilled investigators, in the hope that the mere bulk of work done would yield here and there a fact of vital importance, although much of the work might be erroneous or incomplete. The other, "the Bears," replied that while it was easy to carry out the first plan, the genius behind an epoch-making discovery could not be bought. In support of the first school the lecturer pointed out that science required for its advance both the collection of facts and inductions based upon them. Thus Darwin consolidated the observations of Buffon and Linnæus in the "Theory of Evolution"; modern bacteriology presented in a new light age-old observations upon the characters and symptoms of human disease. Again, the elucidation of a given problem required observations by many workers, each skilled in his particular branch. Waste was inevitable, but justified by the end. On the other hand, many of the great discoveries in the history of medicine had been made by men who were neither subsidised nor equipped with an adequate laboratory—Harvey, Jenner, and Lister among them. Their laboratories, said the lecturer, were in their brains. Unfortunately the reputation of having a laboratory leaning was even to-day sometimes injurious to practice; so that the doctor was tempted, even on occasion obliged, to shun laboratory investigation. The private enthusiast could not be discovered until he had done his work, but Sir Ronald Ross thought that the least the State could do for him after discovery was to repay his expenses, and the most, to enable him to continue at work. The apathy of the great majority of human beings to the subsidy of medical research was amazing to the lecturer; their money was too often applied to futile projects, for they ignored the personal menace of disease. The lecturer concluded by exhorting his hearers first to practise the cure or prevention of sickness, and, if possible, in their leisure to try to solve some problem in science.

Aberdeen Medico-Chirurgical Society.

A meeting of the Society was held on Oct. 25th, when the President, Dr. Alexander Ogston, delivered his presidential address on Observations on Some Modern Methods of Anæsthesia. Dr. Ogston first gave a brief survey of the methods of anæsthesia in common use in Aberdeen within his own experience, pointing out that up to about 1917 the method in practically universal use was the administration of chloroform, or in rare cases ether given in a cone-shaped towel. As long ago as the early eighties of last century Dr. Blaikie Smith, however, had devised and used with a certain amount of success a special inhaler of leather and metal with flannel padding for the administration of open ether. About 1917 open ether came into more common use, having been brought to the notice of the anæsthetists by Sir Henry Gray after a visit to America. Dr. Ogston then discussed this method, indicating its difficulties, and describing the various methods in use and the types of apparatus, including his own special mask

which prevented the diffusion of the ether vapour. The intra-tracheal and rectal methods were specially referred to. Nitrous oxide and oxygen as an anæsthetic was then discussed and apparatus shown; modern improvements were indicated, and the use of this anæsthetic with the addition of ether or of chloroform and ether described.

Nobel Prize Awarded to Prof. J. J. R. Macleod.

Dr. J. J. R. Macleod, professor of physiology in the University of Toronto, has been awarded the Nobel prize for medicine for 1923, along with Dr. Banting. He is a distinguished graduate of Aberdeen University, and a son of the Rev. Robert Macleod, Senior Minister of John Knox U.F. Church, Aberdeen. Prof. Macleod was educated at the Aberdeen Grammar School and at Aberdeen University, where he graduated M.B., Ch.B., with honours in 1898. Four years later he obtained the degree of D.P.H. at Cambridge University. After studying at Leipzig and Berlin, he became demonstrator of physiology at the London Hospital, later lecturer in chemical physiology and pathology in the Sir Andrew Clark Institute, London. During the following year he was appointed professor of physiology at the Western Reserve University, Cleveland, Ohio. In 1918 he took up his present post. In 1913 he published his paper on diabetes. The research work, which resulted in the discovery of insulin, was carried out in the Toronto laboratories under his supervision.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Dublin University Biological Association.

AT the opening meeting of the Dublin University Biological Association, held on Oct. 27th in Trinity College, Dr. George E. Nesbitt, President, gave an address on Modern Developments of Medicine. Having touched on various other topics, he devoted most of his time to the study of kidney disease and to the modern treatment of diabetes. He gave the results of his experience with insulin, and expressed the opinion that 75 per cent. of cases of diabetes could be controlled by dietetic measures without resort to insulin. Prof. Hugh MacLean, of London, was the principal speaker. He discussed the relations that should exist between bedside and clinical laboratory work, and defended the teaching of laboratory methods to medical students. He agreed with Dr. Nesbitt that much might be accomplished by dietetic measures for the treatment of diabetes, but his experience was that invariably the case at some time went out of control, even when the dieting was very careful. The patient that kept to the diet laid down might get on all right for a year or two or more, and in the end show sugar. He believed that modern dietetic work had done quite a lot to lengthen the life of a diabetic patient, say, from two or three years to six or seven years, but that was all that it had done. That was his experience in the hundreds of cases that he had treated.

Dr. Henry F. Moore, in seconding a vote of thanks, announced that the price of insulin was about to be reduced by half. Other speakers were Sir Thomas Myles and Prof. W. Caldwell.

The Local Government Board and Private Practice.

The Council of the Irish Medical Association had under its consideration last week the report of an inspector of the Local Government Department dealing with complaints made against the medical officer of the Birr Hospital. The complaints were found to be groundless, and the patient at any rate had no claim to attendance from the medical officer in question. The report, however, went on to say:—

"The charges are obviously not of a serious nature, but they involve principles which must be clearly defined . . . Obviously a doctor, and more especially a medical officer in receipt of salary from the rates, when called upon to attend an accident case, is not justified in assuming from the statements of a lay person that his immediate attendance is unnecessary, and that the case can wait for the presence of another doctor whose particular duty it is to attend to it. . . ."

A copy of this report was forwarded to the local authority under whom the medical officer serves. The Council of the Irish Medical Association has registered a protest against the action of the department by passing the following resolution:—

That the Council had under consideration the report of the Local Government Department Inspector in regard to charges brought against Dr. Fleury, of Birr, in which report a certain degree of blame is attributed to Dr. Fleury. The Council begs leave to point out that Dr. Fleury's services, for which he is paid by a public authority, are limited to attendance on patients admitted to the hospital of which he is medical officer. Dr. Fleury is under no obligation to attend accident or other cases outside the hospital, and such attendance would be merely an incident of private practice. The Council, further, is unable to concur in the assumption of the inspector that "a doctor and more especially a medical officer in receipt of salary from the rates," is liable to censure or control by the department in regard to the conduct of his private practice.

A copy of the resolution was ordered to be sent to the press, as well as to the Ministry of Local Government.

Oct. 30th.

UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

An Employment Agency for Consumptives.

IT is now several years since the United Hebrew Charities and some other Jewish organisations in New York launched the Altro shop—an industry in which only the tuberculous were to be employed. Both from the financial and the therapeutic points of view this shop has proved a very noteworthy success. The patients or workers are under constant medical supervision and are not permitted to do more work than the doctor prescribes. Care is taken that their wages shall never be insufficient to provide for themselves and their families; at the same time an ingenious arrangement of rewards prevents any inducement to practise "soldiering." The shop is situated in the Bronx district and the workers therefore travel out to work and home from work in the opposite direction to the flow of heavy traffic during the rush hours. So impressed have been the officials of the National Tuberculosis Association with the success of this small enterprise, that they have now designated a member of their staff to make a special survey of the industry. At the same time there comes from the director of the New York Tuberculosis Association, Mr. J. Byron Deacon, a very important announcement concerning an experimental labour bureau which they are about to furnish for the benefit of tuberculous citizens of New York. The purposes of this bureau were announced to a recent meeting of the New York City Conference of Charities and Correction as follows:—

1. To study industries and analyse the jobs therein, in order to discover suitable occupations for persons with tuberculosis in quiescent or arrested stages.
2. To give vocational counsel to and find employment for persons in arrested or quiescent stages of tuberculosis, making the initial contact in the sanatoria where possible, coördinating the work with the medical and social services of tuberculosis clinics, sanatoria, and family welfare agencies.
3. To precede placement with thorough medical examination and to follow placement with intensive medical and social service supervision.
4. To broaden the opportunities for suitable employment for the tuberculous by a campaign of education of employers.
5. To develop, in connexion with the existing training schools for the handicapped, and with selected industrial establishments, facilities for trade training for individuals who cannot be placed directly at suitable remunerative work.
6. To study and interpret the experience derived from the aforementioned activities for the benefit of tuberculosis agencies generally.

The bureau is known officially as that of vocational service for the tuberculous. Its staff consists of an executive, a medical consultant, two placement

secretaries, a medical social worker, and a clerk-stenographer. The funds required to support this work for the next three years are assured by a gift of $40,000 from the Laura Spellman Rockefeller Foundation.

A Medical School Dormitory for Harvard.

"Ninety-three men live as one of a group of students." This is a sentence taken bodily from the report of the Temporary Dormitory Committee of the Harvard Medical School Alumni Association. It represents, probably, one of the reasons why Harvard Medical School should be endowed with a "dormitory." The uninitiated, who are not able to understand from sentences such as this just why the committee recommend a dormitory, can nevertheless easily imagine the advantages of such an institution. The new Harvard building is to house 225 students in 200 rooms and is to include an assembly hall with seating accommodation for 500. As there is at present no large auditorium in convenient proximity to the buildings of the medical school, the projected hall is likely to prove very useful. The cost of buying the site and erecting the dormitory will amount to close upon one million dollars, a sum which is to be raised among Harvard medical graduates and their patients.

American Posture League.

It has been the consistent policy of the American Posture League to combat ill-shaped boots, badly tailored coats, deforming corsets, and other enemies of posture by promoting the advertisement and sale of clothing which they have approved. A firm is found which is willing to coöperate—and such firms cannot be difficult to find—whereupon a committee is appointed by the League to investigate the anatomical requirements and the most satisfactory method of meeting them. Thus, by the committee on shoes there were secured tracings of several thousand average feet, including the feet of Indians and Chinese who never had worn any footwear. Three categories of feet were found, represented in men and women alike and among the unshod as well as among the civilised. A firm was found willing to issue footwear of the three types designated inflare, straight, and outflare, and their products are now sold with the official approval of the League. The latest development along this line is announced in their annual report, just published. It is the Postur chair, built of steel with a wooden seat. The latter is adjustable both as regards height and declination. The back is designed to support the sitter in the small of his back, and is so hinged to the seat that it always conforms to the ideal posture, though its height is adjustable through one and a half inches to conform to the sitting height of the individual. These chairs are made in varying heights and should meet the requirements for industrial seating in the legislation of various States.

[1] American Posture League, 1, Madison-avenue, New York, N.Y.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The College announces that the next award of the Alvarenga prize, amounting to about $300, will be made on July 14th, 1924, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered. Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the College on or before May 1st, 1924. Each essay must be sent *without signature*, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award. The Alvarenga prize for 1923 has been awarded to Dr. Edward P. Heller, Kansas City, Mo., for his essay entitled Treatise on Echinococcus Disease.

THE PANEL CRISIS.

FURTHER CORRESPONDENCE BETWEEN THE MINISTER OF HEALTH AND THE INSURANCE ACTS COMMITTEE.

THE following letter from the Minister of Health, dated Oct. 26th, has been received by the Medical Secretary, British Medical Association:—

I have read two letters from you in the press upon the dispute, I will not say between us, but regarding the position and payment of panel doctors. This dispute is, if you will forgive me for saying so, both undignified and unprofitable, as I am quite convinced that you and I are really animated by the same desire—namely, to do what is best for the country as a whole. Before, therefore, the suggested "strike"—a word of ill omen as applied to your great profession—is made effective, I am very desirous that the profession, the societies, and the public should realise what my position is and on what it is based.

As Minister of Health, what I have to aim at is to secure the best medical service I can without putting undue strain on the taxpayer, the employer, and the insured person, who are all partners in the matter. The medical profession, on their side, naturally desire to obtain the utmost remuneration consistent with their views of fairness. The societies, on their side, naturally desire to obtain as much advantage as possible for the millions of insured persons under the provisions of the National Health Insurance Acts. I have to take account of both standpoints, but the final test for me is what is best in the public interest. What have I done? I found the controversy in being when I came to the Ministry of Health. At once I took steps to acquaint myself with the position, and studied the claim made on behalf of the profession in August. I saw both the Consultative Council of Approved Societies established under Order in Council to advise me on insurance questions, and other representatives of the approved societies, and I finally saw the Insurance Acts Committee of the British Medical Association.

Two things had to be considered: (1) What is a fair price to pay the practitioner for his services? and (2) what is the position of the insurance funds? The profession claim that at least 9*s.* 6*d.* is the fair price. A considerable body of opinion among the approved societies claims that 7*s.* 3*d.* is the fair price. I decided that 8*s.* 6*d.* for three years or 8*s.* for five years is the fair price, and offered it, giving my reasons fully. But I was not so foolish as to make the offer before seeing what is the position of the insurance funds. In these days of unemployment and over-taxation, I simply cannot ask the Government for a further subsidy, or put on extra contributions, unless the paramount public interest says that I must get more money in one way or the other. A great many statements have been made in various quarters as to reserve funds in the National Health Insurance accounts, out of which it was claimed that a fee of 9*s.* 6*d.* or more than 9*s.* 6*d.* could easily be found for the doctors. The famous millions which bulk so largely in the controversy consist mainly of a reserve fund built up by payments of the younger insured people, who in their earlier days are not often disabled by illness. But the fund is actuarily essential to meet the heavy claims of later years at an age when sickness is almost certain. Clearly this fund cannot be touched.

Then there are various smaller funds, some reinsurance funds like the Central Fund, some like the Deposit Contributors Fund and the Exempt Persons Fund, held for special small sections of the insured population, but not one accruing from unpaid doctors' fees, as has been suggested since the whole of the money found for fees, even in respect of insured persons who do not select a doctor, is distributed each year to the doctors on the panels. All these matters were fully investigated, and after consultation with the Government actuary, I found that the fee which seemed to me fair on the merits could reasonably be charged to the funds for a limited period, without endangering the benefits either statutory or additional secured to the insured. First, therefore, I came to a decision on merits. Then I found that the money was available. Then I made my offer, and I stand by that offer.

Now I come to the suggestion that the question should have been referred to arbitration. This was obviously an easy way for a Minister out of a difficult question. But is not one of the cardinal points which you are now making that the profession in this matter of remuneration, while agreeing that if I like, I can consult the approved societies, wishes itself to be clear of them? If arbitration ensues, then there must inevitably be three parties—the Minister, the profession, and the approved societies. You will have to come into direct relation with the societies, whether you like it or not, and in refusing arbitration I have, in fact, to a great extent been thinking of your standpoint, feeling that

it would easily put you and the societies in a position good neither for you nor for them, nor for your patients.

In this connexion I call your attention to your statement in your letter published in the *Times* of Oct. 22nd: "If it is firmly and irrevocably understood that the question of the kind of medical attendance to be given under the insurance system and the payment for it is a matter to be decided, not by the approved societies or under their financial pressure, but by the Minister of Health, after consultation with all parties concerned, &c." This is the attitude I have throughout the controversy taken, neither more nor less. But the moment I make a decision in accordance with your own view of the Minister's duty, you say it is an offer which you cannot accept.

You go on to suggest that some concession should be made to the peculiar conditions of rural practitioners. Are not the officers of this department discussing that very matter with you at this moment with the earnest desire to arrive at a satisfactory conclusion? Have they not told you that I personally intend to do all in my power to improve the position of the rural practitioners? Finally, may I add that I am not enamoured of the panel system, and if the doctors would prefer at an earlier date than was anticipated a full inquiry into the best method of dealing with medical benefit, including, of course, the question of doctors' fees, I am willing to submit to my colleagues in the Cabinet a proposal for an early Royal Commission on the whole subject, and to undertake that the fee now suggested should be reconsidered in either direction as soon as the Commission reports.

A reply as follows, dated Oct. 27th, was sent by the Medical Secretary to the Minister:—

I am obliged by your letter of the 26th instant, and I agree that the dispute on the position and payment of insurance practitioners is unfortunate. It is, however, none of our seeking. The medical profession hates this periodic dragging of its affairs before the public, and would go a long way to avoid it, but it seems to be inherent in the constitution of the panel system. One of the reasons which has compelled us to make a stand on this occasion is to minimise the risk of future exhibitions of the kind.

I note your use of the word "strike," which I would point out is entirely misleading. The resignation of doctors in present circumstances does not mean that they will cease their work for their patients, but merely that they cannot do it under the conditions offered. Let me say quite definitely that the main point at issue is not the money, though I am convinced that your present offer is inadequate. The main object with which we are pursuing this dispute is to maintain a good medical service for the industrial population, and to have it settled once and for all what is the relation of the approved societies to the medical service and the doctors who provide that service. You say that your attitude has been that the question of "the kind of medical attendance to be given under the insurance system and the payment for it is a matter to be decided not by the approved societies or under their financial pressure," but by yourself after consultation with all parties concerned. But the fact remains that the approved societies are threatening you with all sorts of consequences if you take more than 7*s.* 3*d.* (or perhaps they will graciously allow you to make it 8*s.*) out of what they are pleased to call "their funds," and responsible leaders of the societies are saying to the public that the doctors' demand may mean bankruptcy to some of the smaller approved societies. One responsible organ of the insurance world declares that "if 9*s.* 6*d.* is paid to the doctors the insured person is being robbed of additional benefits for the advantage of the doctors." Can you wonder that in face of the growing pretensions of the approved societies we believe that whatever you or they may say, the societies are in effect demanding to be made the arbiters of the price that is to be paid for the medical service under the National Health Insurance system, and the medical profession will never allow such a position to be established either implicitly or explicitly.

I am sure that before this dispute is ended it will be necessary for you to make it plain by legislation, or in some way other than the declaration of even a responsible Minister—because Ministers change—that the position is not such as the approved societies claim; that medical benefit is the basis of the whole National Health Insurance system; and that the conditions of this service and the remuneration to be paid for it are matters to be settled by the community and not by any section of the community.

As to the question of the capitation fee, I am bound to say that you have entirely failed to convince any of us that 8*s.* 6*d.* is the equitable fee, taking all present circumstances into consideration. The profession regards the award of the arbitrators in 1920 as the bed rock from which it starts, and no amount of calculation by experts will convince either the doctor or the man in the street that 8*s.* 6*d.* will buy now, or is likely to buy within the next year or two, what 11*s.* bought in 1920. We are, however, still prepared to enter into negotiations with you, as representing the community, as to the exact value of the services we are asked to render. We do not, however, consider that being presented with a decision which we are told to accept or refuse is the same thing as negotiating. Moreover, the profession has convinced itself that there is in the National Health Insurance Fund sufficient money to pay the present fee of 9*s.* 6*d.* or even more, if the basic and essential nature of medical benefit be firmly established.

A good many wild statements have been made about the millions in reserve. So far as I am aware no responsible person on our side has suggested more than that the unexpectedly low demands on sickness benefit and the unexpectedly high rates of interest earned by the fund have given the Ministry a margin with which they could quite well pay the present fee without infringing on any of the benefits that are now being given to insured persons and without calling upon either the State, the employer, or the insured person for any additional contribution. I am not aware of anyone with authority to speak for the doctors who has suggested that there is a fund accruing from "unpaid doctors' fees" out of which the money now required ought to be found. We who speak for the profession know that all the money put into the central pool for the payment of doctors is distributed each year to the doctors on the panels.

Your suggestion that arbitration, if granted, would necessitate the approved societies coming into the matter is one which I cannot admit for a moment. It could only be admitted if you were to give our case entirely away by agreeing that the money paid to the doctors for providing a national health service for a large section of the community is taken out of a fund belonging to the approved societies. We cannot admit this. We feel that such was not the intention of Parliament, and if we are proved to be legally wrong it is, in my opinion, essential that the position should be altered at once. You will never get a contented medical service if the approved societies are to be placed in this position. We are quite ready for arbitration at any time on the lines of 1920—namely, as between the Minister and ourselves.

I gladly acknowledge that the officers of your department are at the present engaged in discussing the peculiar conditions of rural practitioners. I sincerely trust that you may be able to meet their exceptional and legitimate demands. I also freely acknowledge the personal interest you have shown in this matter.

Finally, let me say that the profession is prepared for a full inquiry, either Departmental Committee or Royal Commission, at any time you like, provided it *is* a full inquiry which will take into consideration not only the doctors' fees but the administration of the Act all round. It is, however, not usual, I believe, to suggest that a party to a dispute should accept a reduction in remuneration pending the report of an inquiry. I venture to suggest that you should follow the ordinary course and leave the capitation fee as it at present stands until the Royal Commission or other body appointed has reported. We should, of course, be willing to be bound by the report of such a commission, just as we would by the opinion of independent arbitrators dealing with this matter as between ourselves and you.

THE PROPOSED TERMS OF SERVICE: MR. H. S. SOUTTAR'S ADDRESS.

Presiding over a discussion at the Marylebone division of the British Medical Association on Oct. 26th, Mr. Souttar said that the alternative subjects—"The proposed terms of service of the panel practitioner" and "The future of the panel and the hospitals"—proposed for discussion arose from the uncertainty which existed as to the precise course of events, and he went on to say:—

But I venture to think that the alternatives are merely different aspects of the same subject. Indeed, for those who have studied the question at issue it is difficult to escape the conclusion that the future of the whole medical profession is bound up in the present conflict. It is no question of a sixpence less or a sixpence more that is at stake. The issue we are fighting is to determine whether we shall be the servants of the State or of the approved societies. If we lose, these wealthy corporations will be left absolute masters of the national insurance of our country, the Ministry of Health will have to do their bidding, and I ask you how long will it be before our great hospitals are absorbed under the title of additional benefits. If we win, as I am convinced we shall, we shall be able to dictate our own terms and to lay the foundations of a thoroughly sound medical service, in which every section of our profession will be proud to share.

There are those who would have us believe that compulsory insurance is altogether wrong, and that contract service is

altogether humiliating. Such men to my mind must lack both knowledge and imagination. The working man is absolutely unable in most cases to meet his doctor's bill when he is ill, and in the old days it was a regular practice in industrial areas for the doctor, having cured his patient, to send a collector round to dun him every week until the bill was worked off. Surely it is more in keeping with the self respect of both doctor and patient that he should pay whilst in health, and know when he is ill that the service he receives is no charity and yet involves no debt. Those who have the widest experience of insurance practice tell me that compulsory insurance is the only basis on which our working class can get an efficient medical service, and common sense tells me that they are right.

With those who maintain that all contract service is humiliating I find it difficult to speak with patience. On what basis may I ask are our judges, our administrators, our civil servants paid, unless it is a contract for services rendered to the State? Of course there are black sheep in every fold. They have even appeared in Harley-street. But those who condemn wholesale the contract system should remember that they are condemning the work of 14,000 members of our profession, perhaps on the evidence of a neurotic housemaid. I know personally of panel practices in Buckinghamshire, in Dorset, and in Stepney, run as clinics of the most modern type, with specialist services and with an equipment of a very high order. The fact is that contract work enables a man to treat his practice as a business proposition. He is certain of a definite income and it pays him to be efficient. The more efficient his arrangements the easier will be his work, the larger his practice, and the greater his return. The dignity seems to me to be far more with the contract man than with him whose practice is a series of windfalls.

I hold then that insurance for the patient and a contract for the doctor are essential in industrial practice. But what are the essentials of the contract? I think they are two. He must be adequately paid and he must be free from commercial control. As to what constitutes adequate payment I do not propose to discuss. It must compare with the returns of private practice, it must be sufficient to attract men of a good class, and it must be sufficient to enable them to live in circumstances agreeable to the important services they are rendering to the State. Nothing could be more disastrous than a national insurance with an ill-paid and dissatisfied medical service. I will only ask this one question: Can the State afford such a service? The answer is contained in the fact that the funds now accumulated by the approved societies total 100 millions, and that this reserve is being added to at the rate of 7 or 8 millions a year. How much of that great reserve is due to the labours of those very men whom these societies now revile as incompetent and proclaim as robbers?

But even more important is the freedom of the doctor from commercial control. He must be the acknowledged servant of the State, the man to whom is entrusted the health of his country. His certificates must pass as sterling, and not be liable to the control of penurious officials. And he must be able to obtain freely for his patients all that modern science can afford.

It is here, Mr. Souttar concluded, that we really touch on the future of the panel. To my mind the panel system at present is only half a service. National health insurance can never be complete until the hospitals with their great resources form a part of it, until the patient passes naturally and by right from his doctor to the hospital, when its special services are required. It will be a great day for the hospitals, for they will then be adequately paid for the work they do, and their financial difficulties will be over for ever. And it will be a great day for our profession, for we shall all take our share as members of one great national medical service. It is for this that we are fighting, and I venture to think that it is a prize worthy of great effort and of great sacrifice.

THE ALLEGED APPROVED SOCIETY "CONTROL."

"Control" is a difficult word to define, and the acquisition of power by one section of the community over another may be an insidious process. It seems convenient to set out once again the sequence of events in regard to the relation of approved societies to medical benefit.

Local Administration of Medical Benefit.

The actual day-to-day administration of medical benefit is carried out by the local insurance committee, which (subject to instructions from the Ministry of Health) administers the Acts, regulations, and departmental decisions for the time being in force; that is to say, as regards matters more closely affecting the insurance doctor it merely administers the decisions of principle which have, ex hypothesi, been arrived at centrally after central negotiation between the Minister and the representatives of the profession. As regards some of these questions the committee can act only in agreement with the panel committee. The committee is also responsible for making the necessary cash payments to the doctors, and for this purpose it receives from the central practitioners' fund the amount which the Minister, on the advice of the central distribution committee, has allotted to the area, this amount being shared out to the individual doctors of the area according to the terms of a local "distribution scheme" which is prepared jointly by the insurance committee and the panel committee. The actual day-to-day administration of medical benefit is thus not, in theory at least, under the control of the approved societies.

Constitution of the Insurance Committee.

We have seen how medical benefit for each area is administered by the local insurance committee. Insurance committees are so constituted that the approved societies, although having no officially recognised "control," can (and therefore do) largely influence the practical local administration of medical benefit. The committees vary in size from 20 to 40 members. Of these, three-fifths represent insured persons, and these representatives are mainly chosen by election and nomination by or through approved societies. The medical profession, on the other hand, is represented by two doctors appointed by the local medical committee, one appointed by the county or county borough council, and (if the committee numbers 30 or more) one appointed by the Minister. The remaining members consist of nominees of the local council, representatives of the chemists, and women members appointed by the Minister. This preponderating voice on insurance committees of representatives of insured persons does not, however, constitute the "control" to which the profession has more recently taken exception. The doctors have, it is true, frequently urged that their representation on insurance committees is inadequate; yet it is recognised that the profession has in each area two committees of medical men—the local medical committee and the panel committee—which have to be consulted by the insurance committee on professional questions. Moreover, it was generally felt that, at any rate until 1922, all substantial amendments to the Acts and regulations which affected insurance practice were the subject of discussion and negotiation between the Minister and the representatives of the profession.

The New Factor Introduced in 1922.

In 1922 a new factor was introduced owing to a shifting of the sources from which insurance practitioners were paid. The original Act of 1911 proposed that the Exchequer should find two-ninths of the cost of medical benefit, but even before medical benefit had become operative the Exchequer contribution had to be increased to four-ninths, while under the Act of 1920 the State contribution was nearly 6*s.* 6*d.* out of a total of 13*s.* 9*d.* In 1922 the remuneration of doctors and chemists was reduced, and this reduction was used in its entirety to relieve the Exchequer. The Geddes committee, however, recommended that the Exchequer should be still further relieved, and that its contribution should be limited to the original two-ninths provided for by the 1911 Act. This might have been effected by increasing the weekly contributions of employer and employed, but in fact the consultative council to the Ministry, which embodies approved society experience, recommended that the contributions should be maintained at their existing rate and that, until the end of 1923, *the balance should be met out of the accumulated surpluses in the benefit funds of approved societies.* The National

Insurance Act of 1922 gave effect to this proposal, subject to a provision whereby the benefit funds were reimbursed, to the extent of one-third of their contributions, out of a central fund controlled by the Minister. Thus there was introduced the significant innovation that the surplus funds of approved societies might be used towards providing the general practitioner treatment which forms a part of the normal medical benefit of insured persons.

The Demands of the Approved Societies.

Concurrently with this proposal there arose a demand among certain approved society interests that, as the societies were to be called upon to contribute towards the provision of general practitioner treatment for their members, they should be given some direct and definite control over the conditions and terms of this service, and, in particular, that they should participate in any central negotiations which might precede any future alteration in the terms of service of insurance practitioners, including, of course, an alteration in the rate of remuneration. This demand has been increasingly urged, and much pressure has been brought to bear on the Minister of Health. It is this contemplated control or influence by the societies over the future conditions and development of medical benefit generally, and of insurance practice in particular, that the medical profession has consistently opposed.

A Public Definition Required.

No Minister of Health has yet publicly defined to what extent, if at all, the claims of the societies in this matter should or will be met. Sir Alfred Mond, on the second reading of the 1922 Act, said:—

"Having regard to the provision in this Bill for contributions in relief of State expenditure from the surplus funds of approved societies, I think that it is no more than fair and reasonable that I shall give the societies an opportunity of expressing their views before any new terms of service are made with the panel practitioners. But the responsibility for accepting these contracts rests and will continue to rest with the Minister of Health. . . . There is no word in this Bill which modifies the existing statutory provisions."

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg.-Comdr. E. R. Grazebrook is placed on the ret. list with rank of Surg. Capt.

W. F. Beattie is reinstated on the Active List as Surg. Lt.-Comdr.

Surg. Rear Admiral E. J. Finch is placed on the ret. list at own request.

Surg. Capt. F. J. A. Dalton to be Surg. Rear Admiral.

Surg. Lt. (D.) F. R. McCambley to be Surg. Lt.-Comdr. (D.).

ROYAL NAVAL VOLUNTEER RESERVE.

G. K. MacLennan, late temp. Surg. Lt. (D.), is transferred to the Permanent List.

ROYAL ARMY MEDICAL CORPS.

Lt.-Col. and Bt.-Col. Sir M. H. G. Fell relinquishes the temp. rank of Col.

Maj. R. H. MacNicol is placed on the half-pay list on account of ill-health.

TERRITORIAL ARMY.

Capt. R. H. Hadfield (late R.A.M.C.) to be Lt., and relinquishes the rank of Capt.

Capt. L. F. E. Jeffcoat (late R.A.M.C.) to be Capt.

Lt. F. J. Lidderdale to be Capt.

ROYAL AIR FORCE.

The undermentioned are granted short service commissions as Flying Officers: T. V. O'Brien and F. W. G. Smith.

The undermentioned are granted temporary commissions in the ranks stated: A. G. Lovett-Campbell to be Flight Lt. (hon. Squadron Leader); and G. R. Hall Flying Officer (hon. Flight Lt.).

Flight Lt. G. W. Allen (Capt., Army Dental Corps) relinquishes his temporary commission on resigning his commission in the Army.

INDIAN MEDICAL SERVICE.

The King has approved of the retirement of Maj. G. Tate on account of ill-health, and of the resignation of Lt. H. McNair.

Correspondence.

"Audi alteram partem."

THE FOUNDER OF THE LANCET: A PERSONAL REMINISCENCE.

To the Editor of THE LANCET.

SIR,—It is surely improbable that any other in our profession than my aged self who was in personal touch with the Founder of THE LANCET can yet survive in the flesh.

In 1812 "Tom," as I always heard him called, shared rooms in a small house built against St. Saviour's Church with Edward Heinekin and my father, John Grabham, as students at the Borough hospitals—then united. Both Heinekin, a profound naturalist, and Tom died at Madeira, where I still represent that bygone trio.

My first sight of Mr. Wakley was at a famous inquest when, as a boy, I was taken by an elder brother to that scene of seething excitement. Wakley, then M.P. for Finsbury and coroner for the district, went into his own witness-box, and I think did much by his terrific declamation to alienate everyone and to crush an adverse verdict in violation of the general consensus of surgical opinion. In the autumn of 1861 I was taken from the house surgeoncy at St. Thomas's, stuffed with knowledge but callow in worldly ways, to spend the winter at Madeira with Sir Julian Goldsmid and his consumptive brother. Mr. Wakley, who had developed pulmonary disorder, came with us, and Tom the second (T. H. Wakley, F.R.C.S.) confided his father to my care. We sailed on Oct. 8th in a small auxiliary steamer called the *Dane*, a 500-ton boat indicative of the embryonic stage of development of the now Union-Castle monsters, and arrived at Madeira, after a heavy gale, in nine days. The old man soon found out that I was well equipped in pulmonary matters, and we became warmly friendly. In those days we had no clinical thermometers, and no hypodermic needles, and I soon found that the bulk of those who crowded Madeira at that time had been brought up on kacoplasm and Blasius Williams. Wakley had extensive lung disintegration, and, though he improved to some extent, a modus vivendi with existing conditions was the most to be expected.

Besides Sir Julian Goldsmid and his brother I had in those days two companions—namely, Charles Tawney, senior classic of his year, and Cecil Monro, fifth or sixth wrangler and both Fellows of Trinity, Cambridge. We rode together every morning and paid our LANCET friend a daily visit before luncheon to listen to his sparkling denunciations of all things, visible and invisible. These explosions, perfect specimens of storm language, seemed necessary to his comfort, and he would grip my shoulder if I betrayed any impatience. His ponderous frame, searching eyes, and vivid animation held us spell-bound as he changed with lightning speed from grievance to grievance. He told us story after story of the country general practitioner—"Go and bleed him and say I am coming"—and made us wonder how with so little knowledge and appliance such a good fight was made against disease in those days. Fraud and adulteration touched him to the quick, and he soon found out that the Madeira wine merchants were exporting on a grand scale though the vineyards there, destroyed by blight, no longer produced a single pipe of legitimate wine.

All efforts to help Wakley as a patient were futile, for he was impatient of any treatment or restraint. He lived through that winter, but succumbed in May, 1862, to copious hæmoptysis resulting from intense excitement. His body was sent for burial in England after an imperfect process of "embalming." It fell to me afterwards to introduce a strong solution of zinc chloride, which I injected

into the femoral arteries, giving them a perfect preservative without evisceration when circumstances required. I sat with him during his last illness, but he was depressed and disappointed and spoke little.

In later years I saw much of the second Tom from time to time. He loved good music and had a piano in his office in the Strand. Moreover, he would occasionally come and sit with me in the organ-loft at St. Paul's Cathedral. In that memorable winter, 1861–62, the British community at Madeira was an interesting microcosm of diverse opinion. The ecclesiastic element was strong and twofold, one faction, noisy and aggressive, crushed us with an unmitigated mosaic cosmogony; the other required our passive acquiescence in whatever decision the Church might promulgate in all matters relating to creation and evolution. Some of us had read the "Vestiges," and my copy of the "Origin"—the first in these latitudes—was in great request; but it was the rash encounter of "Soapy Sam" with Prof. Huxley which really stimulated public interest in Charles Darwin, and led men to reflect that the cradle of every new science had always been encumbered with the corpses of extinct theologians. The focus of our party was the gifted Savilian Professor of Astronomy of those days, and we kept our views and studies to ourselves. Tom said nothing.

As time went on I became personally acquainted with the protagonists of progressive knowledge, and it fell to me eventually to touch copiously on these matters when addressing the Geological Society on behalf of the Royal College of Physicans of London, and I thoroughly enjoyed the sparkling interest of Lord Kelvin in records which for many years he had attempted to amalgamate with unbending Presbyterianism. Wilberforce never held up his head again, nor did Owen after the hippocampus minor fiasco: but the bishop's ever-ready wit charmed us all and went far to condone his subtle superficiality and questionable sincerity.

I could write volumes on the men and matter of those days, but I forbear.

Yours faithfully,

Madeira, Oct. 23rd, 1923. MICHAEL GRABHAM.

CENTENARY OF THE LANCET.

To the Editor of THE LANCET.

SIR,—THE LANCET celebrates its hundredth anniversary amidst a shower of congratulations and good will from the great medical community, in which I join from the other side of the Atlantic. It has been a century of untiring effort in the interests of science.

The reputation for impartiality justly conceded to consecutive editors encouraged beginners and unknown surgeons to bring the results of their labours into the daylight. Thus, by a farseeing discrimination, during a century, THE LANCET has saved valuable material from the scrap heap, and through its columns British surgery has reaped the reward.

THE LANCET has not only rescued much and many from unmerited obscurity, but it has broadcasted the work of great contributors for the benefit of all.

I am, Sir, yours faithfully,

W. I. DE C. WHEELER,
President, Royal College of Surgeons in Ireland.

Chicago, Oct. 20th, 1923.

To the Editor of THE LANCET.

SIR,—On behalf of my associates and myself I desire to have you extend to your editorial colleagues of THE LANCET our sincere good wishes and felicitations upon the completion of what we trust is only the first century of a noteworthy career of your honoured journal, a career certainly unmatched in the annals of medical journalism.

Fraternally and cordially yours,

GEO. W. KOSMAK, M.D.,
Editor of the *American Journal of Obstetrics and Gynecology.*

New York, Oct. 19th, 1923.

We have received the following cablegram from Kharkof, Russia, dated Oct. 26th:—

Journal, THE LANCET, *London.*

Our young journal, *Vratchebnoé Diélo*, sends congratulations to the honourable, old, but always in progress young, confrère on his Centenary, and, expressing deepest esteem, sends thanks from many Russian medical generations who got their education from the pages of THE LANCET.

(Signed) RÉDACTION.

INSULIN HYPOGLYCÆMIA.

To the Editor of THE LANCET.

SIR,—It is well known that insulin hypoglycæmia gives rise to symptoms both in experimental animals and in man. It is, I think, worth while recording the symptoms of an attack which I witnessed accidentally a short while ago and which was induced, without doubt, by insulin hypoglycæmia, because it is of the utmost importance that we should become familiar with the very varied manifestations of this condition. The symptoms exhibited by the patient, who is not under my care, were, I think, unusual. When first seen he was lying down out of doors on the grass, and as the day was fine and he had been taking moderately active exercise this did not seem peculiar. My attention was, however, attracted by the fact that he began shortly to throw his legs about in the air. On going up to him I found that he was sweating profusely, and was suffering from muscular spasms involving the face, trunk, and limbs. These were sufficiently violent to bend him double and to produce very marked contortion of the facial muscles. He was able to walk with assistance, but did so in a very wildly ataxic manner—the ataxia being apparently quite independent of the muscular spasms, which continually interrupted his progress. He was perfectly clear-headed, though naturally a little anxious. His pulse-rate was about 100; respiration did not appear affected except by the spasms. There was no real hyperpnœa or dyspnœa. He had with him four 5-gr. tablets of glucose, and had taken one of these before I saw him, the remainder were taken at once and were apparently quite without effect. In about 15 minutes from the beginning of the active symptoms we had arrived within reach of a sugar basin, and I gave him six lumps, one after the other. Within 10 minutes of taking them the attack ended, the patient expressed himself as feeling quite well and complained of being hungry. The cessation of the attack after the six lumps of sugar had been absorbed was most striking. So, too, the rapidity with which they appeared to act. The patient was taking large doses of insulin (60 units a day), 30 night and morning, and had once before experienced a similar attack but accompanied by loss of consciousness, which fortunately was prevented on this occasion.

I think this occurrence raises the question of the advisability of patients taking fairly active exercise after large doses of insulin, and most certainly illustrates the necessity for such patients to carry an adequate supply of carbohydrate with them in case of emergency.—I am, Sir, yours faithfully,

C. M. HINDS HOWELL.

Harley-street, W., Oct. 28th, 1923.

VICTOR HORSLEY LECTURE: THE LATE PROF. JOHN MARSHALL, F.R.S.

To the Editor of THE LANCET.

SIR,—I should like to think that there are many old University College men, besides myself, who have been pained by the cruel comments on Prof. Marshall made by Sir Edward Sharpey Schafer in his Victor Horsley Memorial Lecture.[1] In order duly to appraise Lister, was it necessary so wantonly to disparage Marshall? I attended the first three

[1] THE LANCET, Oct. 27th, 1923.

courses of Marshall's systematic lectures on surgery, and so informative and thought-awakening did I find them that I attended several lectures in two or three later courses. On the scientific side they were far ahead of any English surgical text-books at that time and for many years after. A more capable judge than I of the worth of Marshall's lectures was James Stanton Cluff, intellectually one of the most gifted men that ever entered the medical profession. He attended Marshall's lectures at the same time as myself. He took full notes in a cursive hand. These he afterwards carefully wrote out in elegant manuscript. After Cluff's premature and tragic death the notes became a prized possession of Marcus Beck's, and after Beck's death they were presented to the Library of the Royal College of Surgeons by Beck's intimate friend and colleague, Dr. Vivian Poore.

In my opinion Marshall was a cultured, critical and scientific surgeon, ever ready to try new paths and explore avenues of fresh knowledge. He had been Fullerian Professor of Physiology at the Royal Institution and subsequently was appointed Professor of Anatomy at the Royal Academy. He served with special distinction a long term of office in the Council of the Royal College of Surgeons and exactly 40 years ago was elected its President. Still later he was awarded the highest honour in the franchise of the profession—namely, the presidency of the General Medical Council, an honour necessarily reserved to a very few men of exceptional ability and character.

How are we to account for this puzzling disparity of opinion respecting a contemporary by intelligent contemporaries? Sir Edward Schafer incidentally throws a little light upon the question. He says that when he attended Marshall's lectures "most of his audience were soon fast asleep. I was one of the sleepers." One word more. Sir Edward Schafer observed, "there is an admirable bust of him (Marshall) at Lincoln's Inn Fields." It is an admirable bust, but it is a replica of that presented by myself to University College on behalf of the subscribers of the Marshall Memorial Fund, of which Victor Horsley was prime mover and honorary secretary.

I am, Sir, yours faithfully,

Oct. 27th, 1923. JOHN TWEEDY.

VACCINES IN CHRONIC OSTEOMYELITIS.

To the Editor of THE LANCET.

SIR,—The annotation on this subject in your issue of Oct. 13th as exemplified by Prof. T. Rovsing, of Copenhagen, corroborates the record set forth below of a truly remarkable case. In recording it I would like to emphasise the vital necessity of adequate vaccine treatment in very chronic cases of osteomyelitis.

My patient, whom I saw at the request of Dr. Shepheard Walwyn, of Carlisle, had had, one might fairly say, the best medical and surgical advice obtainable. Notwithstanding, his infection recurred over a period of 38 years, beginning in 1884, the last abscess being opened in 1921. Originally an osteomyelitis of the right femur, definitely asserted to be non-tuberculous by so great an authority as Sir James Paget (and subsequently so confirmed), this was followed in 1887 by swelling of the right humerus, which recurred in 1889. This swelling recurred in 1903 and in 1905 it was opened by Sir Anthony Bowlby. Mr. Bailey had cause to reopen and scrape the humerus in 1907, 1908, and 1909. In 1913 Mr. Paul opened an abscess in the thigh. Cultures showed streptococci and staphylococci. A vaccine was used, but insufficiently in my opinion. In 1919–20 an abscess formed near the knee and was incised, also another in the groin. This last was in connexion with the pelvic bone. In 1921 another abscess formed near the insertion of the psoas muscle. A few doses of vaccine were given and the *arm* swelled up, but fortunately subsided. The patient was tested by cutaneous injection for tubercle by Sir Thomas Horder, with negative results. I examined some pus from a superficial abscess of the inguinal glands in September, 1921, and found *Staphylococcus aureus*, *S. albus*, and *Streptococcus pyogenes*. I made a vaccine, and the dose, at my suggestion, was slowly worked up until by January, 1923, at least 12 doses of 1000 million organisms had been given.

There has been so far no recurrence. The record gives rise to hope that success has been attained, but it is not yet certain that such is the case. Prof. Rovsing does not favour vaccines in acute osteomyelitis. On the other hand, the work of the Pasteur Institute and Prof. Grégoire, as recorded in your issue of Dec. 6th, 1919, showed that vaccines of the right type have a definite and valuable rôle in aborting early cases. The technique has been well worked out and should strictly be adhered to. To quote Prof. Grégoire's words, "The picture is so different in these cases that they present quite peculiar features and are so mild as to make us doubt as to whether we are not dealing with a new disease."

Nevertheless, we must retain our balance and in acute cases be prepared to revert to surgery if abortive efforts fail. Some cases fail to respond to the best vaccine in the world.—I am, Sir, yours faithfully,

A. GEOFFREY SHERA.

Eastbourne, Oct. 25th, 1923.

THE ALBUMINURIA OF PREGNANCY.

To the Editor of THE LANCET.

SIR,—The extremely interesting article published by Dr. J. W. Russell in your issue of Oct. 27th, and other recent observations on the mechanical factors in orthostatic or postural albuminuria, tempt one to outline certain investigations which are being conducted along somewhat similar lines in connexion with the albuminuria of pregnancy. Although these latter are very far from complete, owing to a shortage of suitable cases and other unforeseen difficulties, it may be of value to compare notes with other observers even at this early stage. Thus one is already indebted to Dr. Russell for the particular method which he suggests in his paper; it is less direct than that which we have hitherto employed, but presents obvious advantages in cases where for one reason or another ureteric catheterisation is contra-indicated.

In reviewing the multitudinous data which have been collected with relation to the so-called toxæmias of pregnancy, one had been impressed with the apparent fact that albuminuria, although in a small minority of instances it may terminate in eclampsia, is *usually* unaccompanied by any other definite deviation whatever from the normal, with the possible exception of œdema. This applies alike to clinical and biochemical observations. It therefore seemed probable, in spite of the general rejection of the mechanical hypotheses which have been advanced by Paramore and others, that some simple explanation might account for the occurrence of uncomplicated albuminuria in pregnancy.

In cases of orthostatic albuminuria apparently due to lordosis, Sonne assumed that the two kidneys would not be equally involved, as the left renal vein would be more liable to compression by an anterior curvature of the spine, and indeed he was able to demonstrate by ureteric catheterisation left-sided unilateral albuminuria. Rieser postulated a compression of the left renal vein between the aorta and superior mesenteric artery in conditions of visceroptosis associated with lordosis. On these and other grounds it appeared not unlikely that a mechanical factor might determine the occurrence of albuminuria in certain cases of pregnancy and might be similarly demonstrated; consequently, with the coöperation of Mr. V. E. Lloyd, who has in each instance undertaken the actual catheterisation (by no means easy in advanced pregnancy), a small number of cases has been investigated along these lines. Our first observation, made in May last, showed a definitely positive result; urine from the left kidney was loaded with albumin, that from the right contained the merest trace. Further results have not been so satisfactory, although in several instances there has been very considerably more albumin on the left than on the right, and in no case has the position been reversed. We cannot therefore draw definite conclusions until our series is enlarged and other factors have been taken into account.

In expert hands ureteral catheterisation appears to occasion remarkably little inconvenience to the patient, and in view of the far-reaching importance of the subject we have considered it perfectly justifiable. At the same time one welcomes Dr. Russell's method of attacking the problem, as catheterisation is not always possible.

It is as easy to summon extraneous evidence to the support of a theory as it is to give scope to the imagination, and I will therefore resist the temptation to develop the thesis or to apply our entirely insufficient data to the pathology of eclampsia itself.

I am, Sir, yours faithfully,

FRANK COOK,
Beit Memorial Research Fellow.

Guy's Hospital, London, S.E., Oct. 29th, 1923.

"PRO LEPROSIS": INTERNATIONAL RELIEF WORK OF THE FRANCISCAN ORDER.

To the Editor of THE LANCET.

SIR,—The dermatological department of the University of Rome has just founded a philanthropic institution of the highest importance. It is the International Relief Work of the Franciscan Order to aid the missionaries who, voluntarily, devote themselves to the care of lepers abroad.

The work "Pro Leprosis" is an international work of charity and piety; it depends for its support upon the generosity of the rich, the small contributions of the less rich, and especially upon the science and sentiment of physicians who, more than anyone else, are in a position to appreciate the suffering due to the frightful infection of leprosy, and the service of missionaries, sisters of charity, and others who risk their lives in order to care for and treat their unfortunate brothers suffering with leprosy.

The physicians who desire to identify themselves with the international committee of the "Pro Leprosis" relief work are requested kindly to send their names to me, and to offer their opinions and suggestions as to the best manner to diffuse knowledge of this worthy cause in Great Britain and the United States of America, and to keep the work alive by conferences, articles in the press, university committees, ladies clubs, societies, &c. The editors of medical and scientific journals and writers for such publications, especially those on the subject of leprosy, are urgently requested to send gratis copies of such journals and articles to: Opera "Pro Leprosis" (Sezione Tecnico-Scientifica), Convento Sant' Antonio, Via Merulana 124, Roma, Italy. Contributions should be addressed to: Rev. P. Cipriano Silvestri, O.F.M., Direttore dell' Opera Francescana, "Pro Leprosis," Collegio Sant' Antonio, 124, Via Merulana, Rome, Italy, or direct to me at Via Cesare Battisti 133, Roma (1).—I am, Sir, yours faithfully,

Oct. 25th, 1923. Prof. VINCENZO D'AMATO.

LICE AND CRIME.

To the Editor of THE LANCET.

SIR,—I venture to endorse in every particular Mr. Theodore Dodd's conclusions, given in your issue of Oct. 13th, as to the grave nature of the lice menace. The council of the Incorporated Vermin Repression Society is fully alive to the part played by vermin, including body vermin, in the causation of disease and economic loss, but the subject is not one that enlists the sympathies of any but a few enthusiastic workers. Fortunately we have been able to obtain the sympathetic consideration of the Ministry of Health in regard to our attitude to lice in casual wards. The Ministry, replying (XII. 155416/23 date Sept. 25th, 1923), assures us that our representations respecting the proposed Casual Poor (Relief) Order, 1923, will be carefully considered by the Minister.

I am, Sir, yours faithfully,

ALFRED E. MOORE,
Hon. Director.

44, Bedford-row, London, W.C., Oct. 28th, 1923.

THE PEOPLE'S LEAGUE OF HEALTH.

To the Editor of THE LANCET.

SIR,—Remembering the generous response to the appeal on behalf of the sufferers in Japan, I now wish, on the eve of my retirement from office as Lord Mayor, to enlist the financial support of the public for the Endowment Fund of the People's League of Health, of which the King is patron.

The purpose of the League, which was founded in 1917 by Miss Olga Nethersole, is to multiply and supplement the sources of public information and education to such an extent that no mother shall lose her child through ignorance: that no man or woman shall be stricken with disease for lack of knowledge.

Recognising the national work that the League has undertaken in the interests of the people through the Trades Union General Council, the National Union of Teachers, and the Prisons and Borstal Institutions of the country, and as honorary treasurer to the Endowment Fund of the People's League of Health—to which the King has graciously contributed £100—I earnestly hope that the community will give a cordial response to this appeal which, as an official member of the League, it is my privilege to make.

Cheques can be sent to the Lord Mayor at the Mansion House and crossed "People's League of Health Endowment Fund."

I am, Sir, yours faithfully,

EDWARD C. MOORE,
Lord Mayor.

The Mansion House, London, E.C. 4, Oct. 25th, 1923.

Obituary.

GEORGE DARELL MAYNARD, O.B.E., F.R.C.S. EDIN., M.R.C.S. ENG.

THE death is reported from Johannesburg, Transvaal, of Dr. G. D. Maynard, who succumbed to cerebro-spinal fever on Sept. 18th, at the age of 47. Dr. Maynard received his medical education at St. Mary's Hospital, qualifying in 1898, and later at Geneva and Paris. In 1901 he became F.R.C.S. Edin., and in 1904 travelled to South Africa, where he practised at first in the Cape Province and later became a railway medical officer in the Transvaal. At this period his interest lay especially in public health administration, and he became successively M.O.H. to the Pretoria Suburbs Health Committee and assistant medical officer to the Witwatersrand Native Labour Association, and later statistician to the South African Institute for Medical Research. After the war, in which he served as Lieut.-Colonel in the S.A.M.C. and D.A.D.M.S. to the Expeditionary Force in East Africa, Dr. Maynard took up consulting practice in cardiology, was placed on the staff of the Johannesburg General Hospital as honorary visiting physician, and resumed the editorship of the *Medical Journal of South Africa*, a post which he had previously held. He also held the position of medical adviser to the Statistical Department of the Government of the Union of South Africa. Dr. Maynard was one of the outstanding figures in South African medicine, and had gained his statistical equipment in a good school. His untimely death will cause regret in this country as well as in South Africa.

JORDAN ROCHE LYNCH, M.R.C.S. ENG.

WE regret to announce the death of Jordan Roche Lynch, who died recently from pneumonia at his residence in Barnes at the age of 80. He was the son of Dr. Jordan Roche Lynch, who practised in Farringdon-street, London, and who, in spite of his early death, was recognised as a pioneer of public health in the City of London.

Jordan Roche Lynch was educated at the Bluecoat School, and entered St. Mary's Hospital, Paddington, as

a student in 1859, and qualified in 1864, thus making the fourth generation of his family to practise medicine. Shortly after he became resident medical officer to Dr. Sibson, for whom he had a lifelong regard, and afterwards was resident medical officer to the Lock Hospital. Leaving hospital work he went into practice at Notting Hill, where he remained for 50 years, retiring as recently as 1917. He was keenly interested in the welfare of his profession, and served on the medical committee of St. Mary's Hospital and also on the medical school committee of that hospital for 13 years, from 1878 to 1891. He was also for 27 years on the council of the Medical Defence Union. As a member of the council of the Royal Medical Benevolent Fund and other charitable organisations for many years he showed a practical interest in the medical charities. His experience of the happenings in the pre-Listerian days and his stories of his old hospital days were always of interest to the younger generations of the profession, who scarcely credit the changes which have occurred in the practice of medicine and surgery. His knowledge of the back history of medical professional work was directly derived from his father, who was one of the early collaborators in the production of THE LANCET under the Founder.

The late Dr. Jordan Roche Lynch married Marian, daughter of Mr. James Oliver, who survives him, and by whom he had five children, all of whom are living, one of the sons being Dr. G. Roche Lynch, pathological chemist at St. Mary's Hospital.

RICHARD JOSEPH TRISTAN, L.R.C.P. & S. EDIN.

BY the death of Dr. R. J. Tristan, on Oct. 25th, Retford loses a well-respected member of the medical profession. Dr. Tristan qualified in 1886, and held the post of resident midwifery assistant at Coombe Hospital, Dublin, before settling in private practice. He went to Retford nearly 40 years ago as assistant to the late Dr. William Pritchard, and his kindness and geniality brought him wide popularity. Dr. Tristan was a pupil and friend of the late Dr. Joseph Bell and Sir Henry Littlejohn, and many were the stories he delighted to tell of these men. He was a vigorous supporter of the National Service League, and took a keen interest in all matters military, having in his youth served in the Sherwood Yeomanry Cavalry and other corps. During the war he was the medical recruiting officer for Retford and district. He was a well-known member of several Caledonian societies. For many years he was a member of the medical staff of the Retford Hospital and Dispensary, and on his retirement from active work there he was made honorary consulting physician.

OWING to the prevalence of chicken-pox this year in Manchester, the Public Health Committee is asking for power from the city council to make the disease compulsorily notifiable for a period of six months, beginning in January next.

Dr. J. B. Mennell, of St. Thomas's Hospital, London, on Oct. 22nd opened a new massage department of the Royal Infirmary, Manchester, and expressed the hope that the honorary medical staff would coöperate in the use of the department, which would materially increase the efficiency of the institution.

ROYAL MEDICAL BENEVOLENT FUND GUILD.—The golf competition in aid of this Guild, which was open to any woman member of a recognised golf club returning the best aggregate of five selected cards against bogey (not necessarily on the same course) between Jan. 1st and Sept. 30th, 1923, resulted in a tie between Miss W. Doxford (Bromley and Bickley), L.G.U. handicap 7, and Mrs. Wright (Stanmore), L.G.U. handicap 20, with an aggregate of 29 holes up on bogey. Ties being decided on the greatest number of holes won from bogey on the five cards, Miss Doxford wins the silver rose-bowl presented by Sir Hugh Rigby, and Mrs. Wright the prize for competitors with handicaps over 18. The Guild benefits to the extent of over £135, and the committee hope to run a competition on similar lines next year.

THE MEDICAL INSURANCE AGENCY.

A MEETING of the Committee of Management of the Medical Insurance Agency was held at the house of the British Medical Association on Thursday, Oct. 25th, when, in the absence of Dr. G. E. Haslip owing to indisposition, the chair was taken by Dr. H. A. des Voeux. Other members present were Dr. E. Weaver Adams, Lieut.-Colonel R. H. Elliot, Dr. R. A. Gibbons, Dr. R. Langdon-Down, Sir Dawson Williams, Sir Squire Sprigge, and Mr. W. E. Warne. The secretary presented the audited balance-sheet for the year 1922, together with the chairman's report thereon. A very interesting detailed schedule showed the great and rapid progress made by the Medical Insurance Agency during the last eight years. The premium income increased from £12,104 in 1915 to £37,936 in 1922, whilst the commissions, &c., earned rose from £1950 in 1915 to £5250 in 1922. For the third year in succession policies totalling over £100,000 in sums assured in respect of life and endowment assurance were arranged through the medium of the agency, bringing the total sums assured up to Dec. 31st, 1922, under these heads to over £700,000. Business in fire and accident insurances has increased; the convenience of paying one premium for all household risks under a flat rate is apparently much appreciated. An interim report by the chairman for the nine months ended Sept. 30th, 1923, stated that the popularity of this comprehensive household contract continued. In spite of a decline in life assurance business experienced by all offices, and in spite of the existence of keen competition, the agency negotiated 62 new life policies during the period. One of the advantages—and not the least—of the Medical Insurance Agency is that members of the profession can obtain from it personal advice as to the particular kind of policy to meet the individual's particular needs. During the annual meeting at Portsmouth no fewer than 55 interviews took place, and it was found possible to adjust several delicate matters to the satisfaction of the applicant.

The amount of business in insuring motor-cars done by the Agency increased during the year, but bearing in mind the large number of cars now used by members of the profession it is believed that the amount could be further increased. Motor-car insurance is a specialised business; accidents are more heavy and frequent than in almost any other form of insurance, and members of the profession would be well advised to take advantage of the security offered them to obtain fair and equitable settlements by insuring through an agency so strong and influential as the Medical Insurance Agency. The committee has for some time felt that the benefits already conferred upon the profession might be increased were it in a position to obtain for the person insuring through it advice on all matters affecting the purchase and use of motor-cars. An arrangements has now been made with the firm of Mann, Egerton, and Co., Ltd., to advise members free of charge, either directly or through the medium of the Agency, on any problems, difficulties, disputes, or technical matters relating to motor-cars, including motor coach-work and accessories; to give advice as to the suitability of any particular car for any class of work or type of district; to undertake the periodical inspection of members' cars at a moderate fee; to give expert advice as to the mechanical condition of members' cars, and the advisability of repairs, and to prepare specifications and estimates for repairs to mechanism or coach-work, or for the manufacture of special bodies to meet particular requirements, and generally to place their entire resources at the disposal of members, both in London and throughout the country. The firm has been established over 25 years; it possesses experience, a staff of experts and large works at Ipswich, Norwich, and in London (156, New Bond-street, and 1a, High-road, Kilburn). The firm will place at the disposal of purchasers of cars, through the Medical Insurance Agency, their system of deferred payment; a purchaser pays 25 per cent. of the value on delivery and the balance by monthly or quarterly

instalments as desired. An addition of 2½ per cent. to the list price of the car is made to cover interest charges. The company has a stand (No. 129) in the coach building annexe of the Olympia Show, and its representatives will be prepared to give advice free of charge to medical men intending to purchase on the advice of the Medical Insurance Agency. Application for an introduction should be made to the Secretary of the Agency, 429, Strand, London, W.C. 2.

It appeared from the balance-sheet of the Medical Insurance Agency for the year 1922 that a sum of over £2000 had been returned by way of rebates to those insured through the Agency, an increase of £367 over 1921. The surplus carried to the Medical Benevolent Fund was slightly larger in 1922 than in the preceding year, and a sum of £1500 was allotted as follows: to the Royal Medical Benevolent Fund Guild, £630; to the Royal Medical Benevolent Fund, £315; to the Epsom College Benevolent Fund, £210; to the Royal Hospital and Home for Incurables, Putney, £52 10s.; THE LANCET Editor's Discretionary Fund for dealing with emergency cases, £25. A further sum of £267 10s. was set aside for the fund established by the Agency to make grants in aid of the education of girls, orphans of medical men, or daughters of unfortunate brethren who are precluded by age or ill-health from continuing to practise. Including the contributions now made the total sum subscribed to medical charities by the Medical Insurance Agency since 1910 exceeds £11,500.

THE RECENT SMALL-POX OUTBREAK IN LONDON.

The report of the Public Health Committee of the London County Council on the recent small-pox outbreak in London makes interesting reading. It appears that altogether there were 18 cases—two terminating fatally—of which 11 occurred in the County of London and 7 in extra-metropolitan districts. Attention was first directed to the appearance of small-pox in London on Sept. 7th, the patient being a girl employed as a chambermaid at a central London hotel. During the course of her duties at the hotel she had waited upon a lady visitor from Spain, who, in the absence of medical advice, was thought to be suffering from influenza, with spots attributed by her to fish poisoning. This woman left the hotel on August 19th and efforts were immediately made to trace her movements and destination. Before she was ultimately discovered on Sept. 10th at an address in an out-county suburb, two cases presented themselves which apparently were the result of contact with her. One patient was employed in the vicinity of the hotel where she had stayed and the other was actually employed at the hotel. When finally she was located, the local medical officer of health, on visiting the address, discovered an adult relative suffering from a severe attack of small-pox, and ascertained that the lady herself was out shopping in the West End of London. On her return she was found to be recovering from a mild attack of small-pox. On the same day another case was discovered in London, the patient being a relative who had been in contact with her. During the later period of her convalescence, before she was removed to hospital on Sept. 10th, this lady was visiting, shopping, &c.

Ten further cases afterwards occurred. Three apparently had no connexion with the original source of infection, but four were presumed to have been infected by the man who worked in the vicinity of the lady's hotel. Of the remaining three, one was a man employed by a laundry firm in washing soiled linen from the hotel, and the other two were adults who had occupied at different times the room at the hotel in London previously occupied by the Spanish visitor. The Public Health Committee of the Council conclude: "The medical officers of health in the various local areas had the assistance of the Council's experts in diagnosis, Dr. W. McConnel Wanklyn and Dr. J. A. H. Brincker, and took prompt measures to arrest spread of the disease, including the vaccination and observation of contacts. Vaccinations and revaccinations by public vaccinators of school-children in the schools directly or indirectly connected with the outbreak have also been carried out through the medium of the Council's divisional medical officers acting in coöperation with the board of guardians. Only one child of school age (an unvaccinated boy of 12 years) contracted the disease. As a result of the energetic measures taken the outbreak of small-pox in London was localised." Of the 18 cases which occurred, 12 patients whose ages ranged between 23 and 79 years had not been vaccinated since infancy, and of these 1 died; 5 between the ages of 12 and 50 years were unvaccinated, and of these 1 died. One patient had been vaccinated in the army in 1914, and suffered a very mild attack.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary Comitia of the College was held on Oct. 25th, the chair being taken by Sir Humphry D. Rolleston, the President. It was reported by the Censors' Board that Mr. George Dawson Stilwell had been appointed Jenks scholar. The following candidates were admitted to the Membership of the College: Drs. C. K. J. Hamilton, D. Hunter, D. G. Leys, W. T. Nelson, D. Nicholson, E. O. A. Singer, and K. H. Tallerman. Licences to practise physic was granted to 168 candidates (including 33 women) who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board, and have complied with the by-laws of the College. The following are the names and medical schools of the successful candidates:—

W. L. Ackerman, London; J. C. Ainsworth-Davis, Cambridge and St. Bart.'s; R. H. Amm, Cape Town and Guy's; R. S. Anderson, St. Bart.'s; F. G. A. Armson, Birmingham; I. Atkin, St. Bart.'s; W. Balendra, Ceylon and London; Rose Baranov, Univ. Coll.; P. E. Bardsley, Cambridge and St. Thomas's; J. S. Benzecry, Univ. Coll.; E. M. Bergheim, Middlesex; Dora M. Berry, Royal Free; E. J. Blackaby, St. Bart.'s; Margery G. Blackie, Royal Free; L. G. Blair, Edinburgh and London; W. L. Blakemore, Birmingham; D. R. Blunn, London; A. J. Boase, St. Thomas's; Hilda A. Bond, Univ. Coll.; E. G. Bradbeer, Bristol; R. T. Brain, London; A. Broido, Guy's; C. O. S. B. Brooke, St. Bart.'s; Georgie G. Brown, Aberdeen and Charing Cross; J. W. Brown, Middlesex; Mary Buck, Royal Free; B. H. Burns, Cambridge and St. George's; Lily C. Butler and Kathleen F. Butterfield, Royal Free; F. B. Byrom, London; C. M. Carruthers, Kingston and London; H. K. Christie, Otago; D. H. Cockell, St. Bart.'s; M. Cohen, Birmingham; B. A. Coles, Cardiff and Westminster; A. B. Cooper, St. Bart.'s; R. Cove-Smith, Cambridge and King's Coll.; I. S. Cristol, Leeds; G. J. Crosby, Cambridge and Univ. Coll.; D. T. Davies, Cardiff; I. G. Davies, Cardiff and St. Bart.'s; T. D. Deighton, St. Bart.'s; Margaret B. M. Dewhurst, St. Mary's; D. Diamond, St. Bart.'s; V. W. Dix, Cambridge and London; A. F. Doyle, St. Thomas's; Doris L. Durie, Univ. Coll.; Hilda R. Dutton, Bristol; N. L. B. V. Eckhoff, Cape and Guy's; L. C. J. Edwards, Melbourne and London; P. Ellman, Manchester; G. S. W. Evans, St. Bart.'s; W. M. Evans, Univ. Coll.; J. L. Farquharson and S. Farquharson, St. Thomas's; R. B. Fawkes, Cambridge and Guy's; H. G. Goldwater, Cambridge and Middlesex; T. S. Goodwin, Cambridge and St. Bart.'s; F. M. Gore, Birmingham; L. J. Green, Westminster; J. V. Griffiths, Cambridge and Durham; P. D. Griffiths and C. J. P. Grosvenor, Cambridge and St. Bart.'s; C. C. Halliwell, Cambridge and St. Thomas's; A. Harbour, St. George's; H. E. Harris, St. Bart.'s; Doris I. Harston, Royal Free and London; G. T. Henderson, Cambridge and Guy's; K. W. Heritage, London; G. Hochschild, Cape and St. Thomas's; Frances A. Hogben, Manchester; E. Holmes, Leeds; J. W. Hope-Simpson, Cambridge and St. Thomas's; Madge W. Hubble, King's Coll.; D. F. Hutchinson, Cardiff and St. Thomas's; L. I. Hyder, King's Coll.; C. Iszatt, London; C. Ive, Guy's; E. C. James, Cardiff; A. H. Johns, Cambridge and St. Bart.'s; C. E. Keast, Guy's; Karin L. E. Kellgren, Royal Free; G. B. Kirkland, Guy's; C. de Winton Kitcat and R. A. E. Klaber, St. Bart.'s; E. H. Koerner, Oxford and Guy's; P. E. M. Lanier, Middlesex; Miriam A. Lawson, Royal Free; J. J. Lewinstein, Guy's; R. H. Little, St. Thomas's; A. A. Lucas, Madras and Edinburgh; A. R. Macdonald and G. B. McMichael, St. Bart.'s; Margaret D. Mason, London; G. B. Matthews, Charing Cross; G. A. Metcalfe, Cambridge and St. Thomas's; H. D. N. Miller, Cambridge and King's Coll.; G. O. Mitchell and P. M. Moffatt, Guy's; C. I. N. Morgan, Cardiff and St. Bart.'s; O. G. Morris, Guy's; N. Moulson, St. Bart.'s; Jeannette F. L. Murray, Cape and St. Mary's; F. W. G. Nash, Middlesex; F. N. Newell-Roberts, Guy's; M. F. Nicholls, Cambridge and St. George's; J. R. Nicholson-Lailey, Bristol; Muriel L. M. Northcote, Royal Free; P. H. O'Donovan and R. J. Oliver, London; Mary E. Ormsby, Royal Free; Jean Orr-Ewing, Oxford and St. Mary's; Amy M. Parkinson, Charing Cross; J. Parrish, St. Bart.'s; T. W. Preston, King's Coll.; C. A. Probert, Guy's; R. J. V. Pulvertaft, Cambridge and St. Thomas's; P. G. D. Quinet, Birmingham; K. Rai, Lahore and Middlesex; W. A. Rankin, Edinburgh and Westminster; J. O. M. Rees and R. D. Reid, St. Bart.'s; W. L. Roberts, Cambridge and Univ. Coll.; H. A. Robertson, Oxford and King's Coll.; N. L. D. Robertson, King's Coll.; Sybil H. G. Robinson, London; T. Robson, Cardiff and St. Thomas's; D. J. Rose, St. Bart.'s; Marjorie Rushbrooke, Birmingham; Z. Salama, Cairo and Birmingham; F. H. Scotson, Manchester; J. M. Scott, St. Bart.'s; H. M. Shelley, Sheffield; A. E. Sherwell, Bristol; Mary M. Sillito, Royal Free; Lucy C. Simpson, St. Mary's; A. J. D. Smith, St. Bart.'s; N. R. Smith, St. Thomas's; L. V. Snowman, Cambridge and St. Mary's; A. C. Sommerville, King's Coll.; M. Stieber, Westminster; R. M. L. Still, Guy's; F. O. T. Strange, King's Coll.; E. R. S. Sweeney, Bombay and St. Mary's; Annie Sydenham, Royal Free; F. C. M. Taylor, Charing Cross; H. Taylor, Bristol; R. C. Taylor, Univ. Coll.; L. M. Teuten, Cambridge and St. Mary's; B. M. Toop, London; A. Turner, St. Mary's; H. F. Turney, Oxford and St. Thomas's;

Helen R. Turover, Charing Cross; F. C. O. Valentine and S. Vatcher, Cambridge and London; D. Vaughan, Guy's; Kathleen C. Vost, St. Mary's; R. G. R. West, St. Bart.'s; R. Whillis, Cambridge and Univ. Coll.; R. W. White, London; A. G. E. Wilcock, Cambridge and St. George's; Doris Williams, Westminster; E. L. Williams, London; Elsie J. Williams and Esther Wingate, Royal Free; J. Wolstencroft, Liverpool; T. Wooldridge, Guy's; and H. Yates, Cambridge and St. Thomas's.

Mr. A. C. Clauson, K.C., was appointed Senior Standing Counsel, vice Sir Thomas J. C. Tomlin, K.C., appointed Judge in the High Court of Justice. Dr. J. A. Nixon was appointed a representative on the Court of the University of Bristol, vice Dr. Newton Pitt, resigned. Dr. Arthur J. Hall was appointed a representative on the Court of the University of Sheffield, vice Sir Humphry Rolleston, resigned. The Senior Censor moved, and it was resolved: 1. That the licence of the College, which was withdrawn from Reginald Nitch Smith in 1918, be now restored to him. 2. That the licence of the College, which was withdrawn from David Arnold Chaning Pearce in January last, be now restored to him.

The President announced that he had appointed Sir Archibald Garrod to deliver the Harveian oration in 1924. The alterations in the by-laws relating to the examinations for the licence, as passed at last Comitia, were passed for the second time. Temporary by-laws were passed allowing David Waters Sutherland and John Cyril Holditch Leicester, being resident in India, to be admitted to the Fellowship in absentia any by-law to the contrary notwithstanding. Mr. Horace Barlow was appointed to the office of Bedell rendered vacant by the death of Mr. William Fleming. The following report was received from the Committee of Management and the recommendations made in it were adopted—

1. That a note be inserted at the end of Clause II., Chapter II., of the Regulations for the Diplomas of L.R.C.P. and M.R.C.S. to the effect that, "the course in General Biology required by Clause VII. 2 may be taken concurrently with the study for the Pre-Medical Examination, in cases where such study is taken at a recognised Medical School and Hospital."
2. That the Higher Certificate Examination of the Central Welsh Board be added to the list of Examinations in which the subjects of Chemistry and Physics may be accepted under the conditions of Clause 2, Section II., of the Regulations for the Preliminary Examination and for the Pre-Medical Examination.
3. That the Matriculation Examination of the University of Queensland be added to the list of Examinations recognised for the Preliminary Examination in General Education.

The Committee reported to the Colleges the retirement by rotation from the Committee, under the conditions of Para. VI., Part I., of the scheme for constituting the Examining Board in England, of Dr. J. A. Ormerod and Mr. H. J. Waring.—Dr. J. A. Ormerod was reappointed a member of the Committee of Management. After the reports of some Committees had been received and other formal College business transacted, the President dissolved the Comitia.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—R. S. Chambers, Guy's Hosp.; G. Israelstam, London Hosp.; T. J. Liengme, Lausanne; and D. Parsons, Charing Cross Hosp.

Medicine.—E. N. C. Annis, Guy's Hosp.; R. Caplan, Glasgow; R. S. Chambers, Guy's Hosp.; D. Dimitrijevitch, Oxford and St. Mary's Hosp.; S. Halperin, St. Thomas's Hosp.; G. A. Lord, Manchester; T. J. Liengme, Lausanne; M. A. E. Somers, Bristol; A. J. Vickery, St. Mary's Hosp.

Forensic Medicine.—E. N. C. Annis and R. S. Chambers, Guy's Hosp.; D. Dimitrijevitch, Oxford and St. Mary's Hosp.; C. J. Fox, St. Mary's Hosp.; S. Halperin, St. Thomas's Hosp.; W. M. Jones, St. Bart.'s Hosp.; Y. N. Lal, Dundee; T. J. Liengme, Lausanne; G. A. Lord, Manchester; and W. R. H. Pooler, St. Mary's Hosp. and Cambridge.

Midwifery.—H. J. Adams, Middlesex Hosp.; H. P. Burns, St. Mary's Hosp.; H. T. Chiswell, Guy's Hosp.; A. J. M. Davies, St. Mary's Hosp.; S. Halperin, St. Thomas's Hosp.; and T. J. Liengme, Lausanne.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: E. N. C. Annis, R. S. Chambers, T. J. Liengme, G. A. Lord, and W. R. H. Pooler.

MATERNITY CASES IN POOR-LAW INFIRMARIES.—The Finance Committee of the Manchester Corporation has approved and forwarded to the city council a proposal that the corporation should subsidise beds in the paying wards of the Poor-law institutions for maternity cases arising in families "lying socially between the Poor-law level and the well-to-do." The charge is three guineas a week, and the patients are expected to contribute about 50 per cent. of that sum. The exact amount to be so contributed, however, is to be considered independently by a subcommittee. The net estimated cost of six beds is calculated at £200, towards which the Ministry would contribute half; the Minister of Health has intimated that he will look with favour on the proposal, and will treat the expenditure as entitled to the 50 per cent. Government grant. Thus the net cost to the corporation will be small.

WELLCOME BUREAU OF SCIENTIFIC RESEARCH.—On the occasion of Dr. Andrew Balfour's retirement from the directorship a representative gathering of the staff was held at the Bureau on Oct. 29th to bid farewell to him and his deputy, Colonel G. E. F. Stammers, who is also retiring. On behalf of the staff Dr. C. M. Wenyon expressed the admiration and esteem which they all felt for their retiring Director-in-Chief and his deputy, and thereafter, as a token of regard, made a presentation to each of them. Dr. Balfour and Colonel Stammers, in thanking Dr. Wenyon and the staff, expressed a hope for the future prosperity of the Bureau.

A NEW HOSPITAL AT SHIRAZ.—A wealthy Persian merchant, Haji Mohammed Hussan Namazi, has presented to Shiraz a maternity hospital, the conduct of which he has asked the Church Missionary Society to undertake. Medical work at Shiraz was only opened in February of this year by the C.M.S., the work being undertaken at the invitation of the Indo-European Telegraph Department of the India Office, and this new department will mean increased responsibilities in an important centre with a population of 60,000 people. Dr. Emmeline Stuart, of Dublin, who went out last February to share the work at Shiraz, will be responsible for the hospital, together with Miss E. A. Thomas, and is at present at Yezd.

THE American College of Surgeons, on Oct. 26th, conferred its Honorary Fellowship on Sir William Ireland de Courcy Wheeler, M.D., F.R.C.S.I., President of the Royal College of Surgeons, Ireland, and on Mr. A. E. Webb-Johnson, C.B.E., D.S.O., F.R.C.S., Honorary Surgeon to the Middlesex Hospital, and Dean of its Medical School. Mr. Webb-Johnson is visiting the United States in response to an invitation to deliver an address at the Special Congress of the American College of Surgeons held at Chicago.

BIRMINGHAM AND MIDLAND EDINBURGH GRADUATES' CLUB.—The nineteenth annual dinner of the club was held on Oct. 25th at the Queen's Hotel, Birmingham, with the President, Dr. J. R. Ratcliffe, in the chair. Prof. Arthur Robinson was the guest of the evening and replied to the toast of the University in a speech in which, after giving delightful reminiscences of his own student life, he described the Edinburgh school as it is to-day, and indicated its probable development in the future.

LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN.—The annual dinner of past and present students will be held at the Savoy Hotel, Strand, on Dec. 6th.

ROYAL DENTAL HOSPITAL OF LONDON.—The dinner of the past and present students will be held at the Trocadero Restaurant (Empire Rooms), London, W., on Nov. 24th, at 7 P.M. Mr. S. Northcroft will preside.

ST. THOMAS'S HOSPITAL: OLD STUDENTS' DINNER. The old students' dinner was held on Oct. 26th, at Prince's Restaurant, Piccadilly, when some 220 St. Thomas's men and their guests assembled under the chairmanship of Mr. W. H. Battle, consulting surgeon to the hospital. Among those present were Sir Arthur Stanley (treasurer), Sir Cuthbert Wallace (Dean of the Medical School and senior surgeon), Dr. C. R. Box (senior physician), Mr. G. Q. Roberts (secretary), Sir Charles Scott Sherrington, F.R.S., Surgeon Vice-Admiral J. Chambers (Director-General, Navy Medical Department), Lieut.-General Sir William B. Leishman (Director-General Army Medical Department), Air Force Commodore D. Munro, Sir George H. Makins, Brig.-General Sir William Horwood, Sir Havelock Charles, Lord Riddell, Sir F. Stanley Hewett, Mr. J. B. Lawford, Sir Hector Mackenzie, Sir Archibald Reid, Sir Seymour Sharkey, Dr. H. G. Turney, Mr. Percy Sargent, Prof. H. MacLean, Dr. G. A. Maling, V.C., Dr. Ingleby Oddie, Sir Squire Sprigge, Dr. N. G. Horner, Sir James Roberts, Dr. Seymour Taylor, and Lieut.-Colonel I. Boulger.

At the express desire of the chairman the speeches were few and brief, Mr. Battle setting the example by simply welcoming the company and stating that the treasurer of the hospital and the Dean of the Medical School would report upon the several and joint activities of the institution. Sir Arthur Stanley's reply showed the good reason that the old students of St. Thomas's have for knowing that the hospital is in a satisfactory and progressive state. Admitting lean times in the near past, he assured his hearers that acute financial troubles had been satisfactorily met, while a valuable move forward could be reported in that the hospital had been able to acquire suitable land and bank up enough money for the erection of a residential hostel. At least £3000 more, he thought, would be required, but the position justified an immediate start. Sir Cuthbert Wallace stated the position of the school, mentioning by name also the recipients of honours during the year and the school prizemen. He showed also that the school stood generally well in athletics, though for the moment the only challenge cup held by the

hospital was the nurses' tennis cup. In respect of London medical education, he called attention to the fact that for the first time there had been a conference of all the licensing bodies to deliberate questions affecting their curricula, and he hoped that this would assist to a mutual recognition of each other's tests. In reference to the relation of the University of London to the constituent medical schools, he spoke of the necessity that the schools, if they were to play their best part in a coöperation scheme, should be left largely independent in their own houses. Sir Cuthbert Wallace concluded by welcoming the guests and proposing the toast of Mr. Battle's health, to which the chairman replied.

LEEDS SCHOOL OF MEDICINE.—The fortieth annual dinner of the past and present men students of the school will be held at the Queen's Hotel, Leeds, on Nov. 16th, at 7 P.M., when Mr. Carlton Oldfield will preside. Tickets (10*s.* each) may be obtained from the hon. secretaries, Mr. A. M. Claye and Mr. W. E. Dornan, at the Medical School, Leeds.

A LECTURE on the Treatment of Rhino-Laryngological Tuberculosis in Finsen Light Institute, Copenhagen, with a note of results obtained, will be delivered by Prof. Strandberg, of Copenhagen, on Monday, Dec. 3rd, at 5.30 P.M., at the house of the Royal Society of Medicine, 1, Wimpole-street, London, W.

ROENTGEN SOCIETY.—A general meeting will be held on Nov. 6th, at 8.15 P.M., in the Institution of Electrical Engineers, Savoy-place, Victoria Embankment, London, W.C., when the presidential address will be delivered by Sir Oliver J. Lodge, F.R.S., on X Rays and the Atom.

DEPARTMENTAL COMMITTEE ON PRESERVATIVES AND COLOURING MATTERS IN FOOD.—The Minister of Health has appointed Mr. P. A. Ellis Richards, F.I.C., President of the Society of Public Analysts, to be a member of the above Committee in the place of Mr. Otto Hehner, F.I.C., who has resigned from the Committee, having to return to South Africa.

PEOPLE'S LEAGUE OF HEALTH.—A series of eight lectures are being delivered at the headquarters of the National Union of Teachers, Hamilton House, Mabledon-place, London, W.C., under the general heading of the Mind and What We Ought to Know About It. The first lecture was given by Dr. Bernard Hart on Oct. 31st on Primitive Instinct, and will be followed by further lectures at 6 P.M. every Wednesday until Dec. 19th, on which day Dr. A. F. Tredgold will speak on Mental Deficiency. Others taking part in the course are Dr. R. H. Cole (Nov. 7th), Dr. R. S. Rows (14th), Sir Maurice Craig (21st), Sir Robert Armstrong Jones (28th), Sir Frederick Mott, F.R.S. (Dec. 5th), and Dr. W. A. Potts (12th). Tickets can be obtained from the Secretary, N.U.T., and from Miss Olga Nethersole, 12, Stratford-place, London, W. 1.

A series of four lectures will be given at the Royal Society of Arts on Monday, Nov. 5th, and following Mondays, at 6 P.M., by Sir Henry Gauvain and Dr. C. W. Saleeby. The title of the series is Sunlight and Health. Tickets, 5*s.* for the course, or 1*s.* 6*d.* a single lecture, may be obtained from Miss Olga Nethersole, as above, or from the Secretary, Royal Society of Arts, John-street, Adelphi, W.C.2.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—A series of courses will be given during November in general and special subjects. From Nov. 5th to 17th a short course in general medicine and surgery will be given at the Royal Northern Hospital, with which will be associated the Central London Ophthalmic Hospital, the North-Eastern Fever Hospital, and the Royal Chest Hospital. The course will include demonstrations in the various departments from 10.30 A.M. each day. There will be a course in gynæcology at the Chelsea Hospital for Women from Nov. 5th to 30th at which lectures by members of the staff supplemented by demonstrations in the out-patient department and operations in the theatre will be given each day. Also from Nov. 5th to 30th the Maudsley Hospital have arranged a course of lectures and clinical demonstrations on some aspect of psychological medicine. The lectures will take place each afternoon. A course of lectures and clinical demonstrations in venereal diseases will be given in the wards and out-patient departments at the London Lock Hospitals from Nov. 5th to 29th, and from Nov. 12th to Dec. 6th, a series of 5 o'clock lectures on Gastro-intestinal, Respiratory, Genito-urinary and Skin Diseases of Children will be given at the Children's Clinic, Western General Dispensary. A practical course in ophthalmology will be given at the Royal Westminster Ophthalmic Hospital from Nov. 19th to Dec. 15th. There will be clinical instruction every afternoon from 2 P.M., and in addition a practical fundus class and special demonstrations in medical ophthalmology and methods of examination three times a week at 10 A.M. Further particulars and copies of the syllabus of any of the foregoing courses will be forwarded on application to the secretary to the Fellowship of Medicine, at 1, Wimpole-street, W. 1. The next fortnight's course in general medicine and surgery will be held from Dec. 3rd to 15th at the Hampstead General Hospital in association with the Hospital for Epilepsy and Paralysis, the North-Western Fever Hospital, and the Paddington Green Children's Hospital, of which further particulars will be given later.

Messrs. William Heinemann (Medical Books), Ltd., announce the forthcoming publication of "Psycho-Analysts Analysed," by Dr. P. McBride, with an introduction by Sir Bryan Donkin, and of the "Medical Year Book, 1924," which will be ready in November.

LONDON HOSPITAL.—The Catherine Gladstone Home at Mitcham has been brought up to date and redecorated by the "Marie Celeste" Samaritan Society, who will maintain and manage it as an annexe of the London Hospital. The opening ceremony will be performed by the Minister of Health at 3 P.M. on Nov. 19th, when the premises and the new ambulance which the committee has had specially built for the use of "annexe" patients of the London Hospital will be open to inspection.

MEDICAL WOMEN'S FEDERATION.—The Council of the Federation held its autumn meeting at Birmingham on Oct. 19th and 20th, in a room in the Medical Institute lent for the occasion. Lady Barrett, President of the Federation, was in the chair. The hon. treasurer announced that 164 new members had joined during the year and that the membership of the Federation now stood at well over 800. Arising out of the minutes of the last meeting was the report that inequality of payment of men and women medical officers at the Post Office still continued, and also that owing to protests made on this account by the Federation and the B.M.A. further appointments of medical women had been made without previous advertisement in the medical papers. It was resolved to write to the Postmaster-General calling his attention to the fact that this was contrary to the public interest, and it was further decided to take steps to impress upon newly qualified practitioners the importance of the principle of "equal pay for equal work" as applied to medical men and women. Among the business before the Council were the reports of the various subcommittees. The report of the subcommittee on venereal disease dealt with the traffic in women and children and with the Trevethin Report. It stated also that there was undoubted need of more medical women in the work of combating venereal disease, but that there was scarcity at present of medical women possessing special qualifications for this work. Several cases of underpayment were considered and dealt with. The question of the rate of payment of assistants in general practice came up for discussion in connexion with a letter from a young practitioner who had found herself obliged to accept an assistantship at very low remuneration, and who asked why the B.M.A. fixed what seemed a very high minimum for public health posts and had apparently fixed none at all for the post of assistants in general practice. It was pointed out that the value of the latter posts lay largely in the experience they afforded or in the prospects they offered, while junior public health posts were not infrequently "blind alleys." The general opinion was that young women practitioners would be wise to apply for posts of assistants to general practitioners more frequently than they did, and that these posts would be useful as a preliminary to public health work as well as to general practice. The opinion was also expressed that there was a considerable demand for women in general practice, and that many openings were still to be found unappropriated throughout the country.

The visit of the council members to Birmingham was not wholly devoted to business meetings, as a committee of the Birmingham and District Medical Women's Association—the local branch of the Federation—had provided a varied programme. On Oct. 18th a dinner was held at the Midland Hotel, at which 100 medical women and women medical students were present. Short speeches were given by Dr. Rose Molloy, who presided, Lady Barrett, Miss Frances Ivens, Dr. Mary Sturge, and Dr. Mabel Ramsay. Dr. Ramsay, who is the representative of the Federation on the B.M.A. Insurance Acts Committee and had taken an active part that day in the important meeting held in London, explained the reasons for the decisions there arrived at, and urged all women panel practitioners to support the policy adopted by the B.M.A. and to send in their resignations when demanded. She considered the conflict was between the medical profession and the approved societies, not between the profession and the Government. It was due to the determination of the approved societies to obtain greater control of the panel doctors, and this, if it came about, would be detrimental both to doctors and patients.

On the evening of Oct. 19th a reception was held at which guests of both sexes, including many prominent medical men and their wives, were present. A play written for the occasion, a skit on dreams and psycho-analysis, was acted, and gave much amusement. On the 20th visits were paid to the children's hospital and to the Carnegie welfare centre.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, Piccadilly, W.
THURSDAY, Nov. 8th.—4.30 P.M.
Papers to be read: A. S. Parkes: Studies on the Sex-ratio and Related Phenomena; Fœtal Retrogression in Mice. (Communicated by Dr. F. H. A. Marshall.) R. A. Fisher: The Influence of Rainfall on the Yield of Wheat. (Communicated by Sir John Russell.)
Paper to be read in Title only: D. Thursby-Pelham: The Placentation of Hyrax Capensis. (Communicated by Prof. J. S. Gardiner.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MEETINGS OF SECTIONS.

Tuesday, Nov. 6th.

ORTHOPÆDICS: at 5.30 P.M. (Cases at 5 P.M.)
Cases:
Mr. Laming Evans: Congenital Dislocation of Head of Radius.
Other cases will be shown.

PATHOLOGY: at 8.30 P.M., *at the Laboratory of the Imperial Cancer Research Fund, Queen-square, W.C. 1.*
Communications:
Dr. G. M. Findlay: Histopathology of Manganese Intoxication.
Dr. W. Cramer: Pathological Lesions of Tryptophane Deficiency.
Dr. J. A. Murray: Further Observations on Multiple Primary Cancer.
Demonstrations:
Mr. A. M. Begg: Mucor Granuloma of the Mouse.
Mr. A. H. Drew: Activation of Growth of Adult Tissues in Vitro.

Wednesday, Nov. 7th.

SURGERY: at 5.30 P.M.
Presidential Address:
Mr. Cyril A. R. Nitch: Cystic Pneumatosis of the Intestinal Tract.

Thursday, Nov. 8th.

NEUROLOGY: at 8.30 P.M.
Paper:
Dr. W. J. Adie: Pyknolepsy, a Form of Epilepsy in Children with a Good Prognosis.

Friday, Nov. 9th.

CLINICAL: at 5.30 P.M. (Cases at 5 P.M.)
Cases will be shown.

OPHTHALMOLOGY: at 8.30 P.M. (Cases at 8 P.M.)
Papers:
Mr. Valentine: A Pair of Diving Spectacles.
Mr. Lindsay Rea: A Preliminary Report on the Treatment of Interstitial Keratitis.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.
TUESDAY, Nov. 6th.—5 P.M., FitzPatrick Lecture: Dr. C. J. Singer: The History of Anatomy.
THURSDAY.—5 P.M., Second Part of FitzPatrick Lecture.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.
THURSDAY, Nov. 8th.—5 P.M., The Bradshaw Lecture: Mr. Walter G. Spencer: Melanosis (Melanin, Melanoma, Melanotic Cancer).

UNIVERSITY OF LONDON ADVANCED LECTURES IN SURGERY.
THURSDAY, Nov. 8th.—(At Guy's Hospital Medical School.) 5.30 P.M., Prof. E. W. Hey Groves: The Treatment of Injuries of the Long Bones produced by Accident or Disease.
FRIDAY.—5.30 P.M., Second Lecture.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
MONDAY, Nov. 5th.—10 A.M., Mr. Maingot: Surgical Pathology. 12 noon, Mr. Simmonds: Applied Anatomy. 2.30 P.M., Mr. Addison: Surgical Wards.
TUESDAY.—10.30 A.M., Dr. Paterson: Medical Wards. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-patients.
WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 12.15 P.M., Dr. Burnford: Medical Pathology. 2.30 P.M., Mr. Armour: Surgical Wards.
THURSDAY.—12 noon, Mr. Simmonds: Demonstration of Fractures. 2 P.M., Mr. MacDonald: Genito-Urinary Dept. 2 P.M., Mr. Bishop Harman: Eye Dept.
FRIDAY.—10 A.M., Dr. Drummond Robinson: Gynæcological Operations. 12 noon, Mr. Endean: Venereal Diseases. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear Dept.
SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy Dept. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.
Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
TUESDAY, Nov. 6th.—5 P.M., Dr. S. E. Dore: Psoriasis.
THURSDAY.—5 P.M., Dr. M. G. Hannay: Erythemata.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.
POST-GRADUATE COURSE: OCTOBER-NOVEMBER, 1923.
CLINICAL LECTURES AND DEMONSTRATIONS.
MONDAY, Nov. 5th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Epilepsy: Dr. Aldren Turner.
TUESDAY, Nov. 6th.—2 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Disorders of Sensation and their Significance: Dr. Hinds Howell.
THURSDAY, Nov. 8th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Pituitary Disorders: Dr. Grainger Stewart.
FRIDAY, Nov. 9th.—2 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Surgery of Cerebral Tumours: Mr. Sargent.
COURSE OF LECTURES AND DEMONSTRATIONS ON NEURO-PATHOLOGY.
MONDAY, Nov. 5th.—12 noon, Pathology of the Neuron, I.: Dr. Godwin Greenfield.
A COURSE OF LECTURES on the ANATOMY AND PHYSIOLOGY OF THE NERVOUS SYSTEM commenced on Oct. 16th.
Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.
The fee for the Course, including Pathology, is £5 5s. The fee for the Anatomy and Physiology Lectures is £3 3s. If taken in conjunction with the Clinical and Pathological Courses, an inclusive fee of £7 7s. will be charged. Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course. Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.
C. M. HINDS HOWELL, Dean of Medical School.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
THURSDAY, Nov. 8th.—4 P.M., Mr. Fairbank: The Treatment of Spastic Paralysis.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.
WEDNESDAY, Nov. 7th.—4 P.M., Dr. W. A. Bullough: Problems of Health Service in Rural Districts.

THE PEOPLE'S LEAGUE OF HEALTH, 12, Stratford-place, Oxford-street, W.
Eight Lectures on the Mind and What We Ought to Know About It, at Hamilton House, Mabledon-place, W.C.
THURSDAY, Nov. 8th.—6 P.M., Second Lecture, Dr. R. H. Cole: Sensation, Perception, Ideation, and Attention.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, Nov. 6th.—4.15 P.M., Dr. F. H. Westmacott: Chronic Catarrh of the Upper Air Passages.
FRIDAY.—4.15 P.M., Dr. T. H. Oliver: Physiology and Pathology of Diabetes Mellitus.

ANCOATS HOSPITAL.
(Special Course on Surgical Tuberculosis.)
THURSDAY, Nov. 8th.—4.30 P.M., Mr. H. Platt: Tuberculosis of the Bone.

LIVERPOOL UNIVERSITY CLINICAL SCHOOL.
(At 3.30 P.M. each day.)
MONDAY, Nov. 5th.—(At the Children's Hospital.) Dr. Murray Bligh.
TUESDAY.—(At the Southern Hospital.) Mr. Armour: Injuries and Diseases in the Neighbourhood of the Hip.
WEDNESDAY.—(At the Northern Hospital.) Dr. Pemberton and Dr. Cunningham: Renal Inadequacy Methods of Determination.
THURSDAY.—(At the Stanley Hospital.) Mr. F. S. H. Heaney: The Chronic Abdomen.
FRIDAY.—(At the Royal Infirmary.) Dr. Roberts: Modern Radiology.

UNIVERSITY OF BRISTOL POST-GRADUATE DEMONSTRATIONS.
WEDNESDAY, Nov. 7th.—(At Swindon), Dr. R. A. Rendle Short: Diagnosis and Treatment of Common Gastric Disorders.
Nov. 9th.—(At Boscombe), Dr. A. L. Flemming: Difficulties in Anæsthesia.

Appointments.

BAYLEY, E., M.D. Lond., F.R.C.S. Eng., has been appointed Medical Officer to the Eastern Telegraph Company.

DAVIES, W. L. G., Chief School Medical Officer for Carmarthenshire.

SOWDEN, G., M.D. Brux., D.P.H., Barrister-at-Law, Medical Officer of Health for the Metropolitan Borough of St. Pancras.

King's College Hospital: ROBERTS, O. W., M.B., B.S., Senior Casualty Officer; CONNAN, P., M.R.C.S., L.R.C.P. Lond., Second Casualty Officer; CAVE, E. H. P., M.R.C.S., L.R.C.P. Lond., House Anæsthetist; OSBORN, H. A., B.M., B.Ch., Resident Assistant Clinical Pathologist; SHELDON, W. P. H., M.R.C.S., L.R.C.P. Lond., and LIVINGSTONE, J. L., M.B., B.S., House Physicians; SNELL, N. W., M.R.C.S., L.R.C.P. Lond., House Physician and Surgeon to Ophthalmic Department; KOHNSTAM, G. L., M.R.C.S., L.R.C.P. Lond., ACHESON, P. M., M.R.C.S., L.R.C.P. Lond., and BROCKINGTON, F., M.R.C.S., L.R.C.P. Lond., House Surgeons; EDWARDS, H. C., M.R.C.S., L.R.C.P. Lond., House Surgeon

to the Urological Dept. and Asst. House Anæsthetist; COLLINS, F. M., M.R.C.S., L.R.C.P. Lond., House Surgeon to Orthopædic Dept. and Third Casualty Officer; SAUNDERS, R. M., M.B., Ch.B., Obstetric House Surgeon; NICHOLSON-SMITH, E. M., M.R.C.S., L.R.C.P. Lond., House Surgeon to Aural and Throat Depts.

Vacancies.

For further information refer to the advertisement columns.

Barrow-in-Furness, North Lonsdale Hospital.—H.S. £225.
Bath Royal United Hospital.—Asst. H.S. £150.
Benenden, Kent, National Sanatorium.—Res. Asst. M.O. £275.
Birkenhead Borough Hospital.—Sen. and Jun. H.S.'s. £200 and £120 respectively.
Bolton Education Committee.—Ophth. S. 3 guineas per session.
Bristol General Hospital.—Hon. Asst. S.
Bristol Royal Infirmary.—Hon. Asst. Dental S.
British Honduras.—Asst. M.O. $2430.
Charing Cross Hospital Medical School.—Chemist to Bio-chemical Dept. £500.
Dundee Royal Infirmary.—Hon. Asst. Vist. Phys.
Eastbourne, Princess Alice Memorial Hospital.—Hon. Ophth S.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—H.P., Obstet. Asst., and Two H.S.'s. Each £50.
Fulham Parish Infirmary, St. Dunstan's-road, Hammersmith, W.—Third Asst. M.O. £250.
Great Yarmouth Hospital.—H.S. £150.
Hospital for Epilepsy and Paralysis, Maida Vale, W.—Hon. Dentist.
Hospital for Sick Children, Great Ormond-street, W.C.—Med. Reg. and Pathologist. £300.
Islington Dispensary, 303, Upper-street, N.—Sen. and Asst. R.M.O.'s. £300 and £220 respectively.
Leamington Spa, Warneford, &c., General Hospital.—R.H.S. £150.
Leeds Public Dispensary.—Sen. Res. M.O. £200. Hon. Radiol. and Hon. Dent. Surg.
London Jewish Hospital, Stepney Green, E.—Res. M.O. and Jun. Res. M.O. £150 and £100 respectively.
Lowestoft, St. Luke's Hospital.—Jun. Asst. M.O. £500.
Manchester City.—M.O. £620 19*s.* 9*d.*
Manchester, Monsall Fever Hospital.—Jun. Med. Asst. £405 6*s.*
Margate, Princess Mary's Hospital for Children, Cliftonville.—Jun. Asst. M.O. £500.
Poplar Hospital for Accidents, East India Dock-road, E.—Sen. Res. O. £275.
Portsmouth Royal Hospital.—H.S. £150.
Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Two Asst. Res. M.O.'s. £80.
Royal Northern Hospital, Holloway, N.—Res. M.O. £250. Cas. O. £125. Also Two H.S.'s. Each £75.
St. Mary's Hospital for Women and Children, Plaistow, E.—Asst. Res. M.O. £130.
St. Peter's Hospital, Henrietta-street, W.C.—Asst. S.
Salisbury Municipality, Rhodesia.—M.O.H. £600.
Sanitary Inspectors' Examination Board.—Examiners.
Sheffield Royal Infirmary.—Ophth. H.S. £100.
West London Hospital, Hammersmith-road, W.—Hon. Asst. S. to Throat, Nose and Ear Dept.
Willesden Municipal Hospital for Infectious Diseases, Brentfield-road, Neasden, N.W.—R.M.O. £367 12*s.*

The Chief Inspector of Factories, Home Office, London, S.W., announces a vacant appointment at Lyme Regis, Dorset.

Births, Marriages, and Deaths.

BIRTHS.

FERNANDEZ.—On Oct. 26th, at a nursing home, to Christine (née Mayo), wife of T. Fernandez, M.R.C.S., L.R.C.P., M.A. Cantab., of 79, Sutton Court-road, Chiswick, W. 4, the gift of a son.

FRY.—On Oct. 25th, to Dr. Gladys Miall-Smith, of Welwyn Garden City, the wife of Dr. H. J. B. Fry—a son.

GORDON.—On Oct. 21st, at Largo House, Largo, the wife of Captain S. Gordon, I.M.S., of a daughter (stillborn).

MARRIAGES.

KERR-PRINGLE—HUNT.—On Oct. 24th, at Cople, Bedfordshire, George Loraine Kerr-Pringle, M.C., M.D. Edin., to Dorothy Isabel, only daughter of the late Alfred Foster Gradon, Indian Woods and Forests, and widow of Seward Hunt, of Alta Gracia, Rep. Argentina.

NORRIS—RATHOUSE.—On Oct. 26th, at Poplar, D. C. Norris, M.B., B.S., F.R.C.S., &c., late Senior Resident Officer, Poplar Hospital for Accidents, to Hélène Rathouse, M.D. Paris and Geneva, L.S.A. London.

DEATHS.

GOSTLING.—On Oct. 25th, at Sunnyside, Winchester-road, Worthing, Thomas Preston Gostling, M.R.C.S., L.R.C.P., L.S.A., O.B.E.

LANE NOTTER.—On Oct. 24th, at a nursing home in Southampton, Colonel James Lane Notter, late A.M.S., aged 80.

TRISTAN.—On Oct. 25th, at Retford, Richard Joseph Tristan, L.R.C.S., L.R.C.P. Edin., of Retford.

*N.B.—A fee of 7*s.* 6*d.* is charged for the insertion of Notices of Births, Marriages, and Deaths.*

Notes, Comments, and Abstracts.

THE ROYAL ARMY MEDICAL CORPS AND ITS WORK.

The Inaugural Address delivered before the Royal Medical Society, Edinburgh,

BY SIR WILLIAM LEISHMAN, K.C.M.G.,
DIRECTOR-GENERAL, ARMY MEDICAL SERVICE.

Sir William Leishman said that he would not talk about the work of the R.A.M.C. in war-time as many of his audience had had considerable experience of that. He divided his address into three parts, beginning with a short account of the stages of service and of the environment and atmosphere of the work, going on to tell of its nature and varieties, and concluding with some of the results obtained.

The Pilgrim's Progress.

In the first part, the speaker said, he had to describe a sort of Pilgrim's Progress. Lieut. "Christian," having passed his examination, was sent to the Army Medical College, where, in addition to the pleasures of comradeship and community of interest which mess life gives, he enjoyed the great advantage of meeting older officers, travelled and experienced both in war and in sport. Here his knowledge was supplemented with the kind of information especially required for military work. Having completed this course, Lieut. "Christian" passes out to the R.A.M.C. depôt, where he is instructed in drill, riding, field work, and similar matters of a military and executive nature. It is at the depôt that he first comes in touch with the men of the Corps. After this he is posted for service and comes into association with other branches of the service. He begins with home service; then comes his foreign service, the attractions of which are many, bringing with it the delights of travel, of widened interests, of intimate friendships and opportunities for sport and games which home life cannot give. He experiences the delight of leave on full pay and free from all anxiety as to the effect on his practice—a thing the struggling young civil practitioner dare not dream about for years. If he goes sick he is treated most generously by the Corps. After seven and a half years' service Captain "Christian," as he now is (he attains that rank, all being well, after three years' service), comes home for his senior course. If he pass the subsequent examination above a certain standard, he is given the opportunity to specialise in any one of certain subjects. In the average case there follows for a period of years alternate home and foreign service, and, after some 20 to 25 years of service, Lieut. "Christian" reaches the exalted rank of Lieut.-Colonel. After that promotion is by selection.

Specialisation in the R.A.M.C.

Going on to speak of the work of the R.A.M.C., Sir William Leishman said that, in spite of popular belief, it was no easier than civil work. Just as much knowledge was required, and more. What they wanted was a really good general practitioner, efficiently trained and self-reliant. The Corps offered a wide field of specialisation in almost every branch of medicine, including pathology, hygiene, general medicine and surgery, dermatology, venereal disease, ophthalmology, radiology, and even midwifery, gynæcology, and pediatrics, for soldiers were sometimes married and had children. The conditions were admirable. They dealt with subjects of high physical efficiency, and it was possible to have a man's complete medical history from the day he joined to when he was discharged. In addition to ordinary medical work and war training, there was work such as recruiting, offering an interesting field to anyone keen on vital standards, anthropology, and kindred subjects; physical training with its associated problems of fatigue, diet, &c.; and sanitation, which, especially abroad, gives great opportunities for epidemiological and kindred work.

The Value of Prophylactic Treatment in Enteric Fever.

Speaking of results, Sir William Leishman said that he would not give a series of statistics. He would content himself in that direction by mentioning the fact that in the Boer War there were more deaths from enteric fever than there were cases of it in the late war. This he attributed in large part to the use of the prophylactic T.A.B. vaccine introduced by Sir Almroth Wright. The army was really the birthplace of hygiene, and Parkes was its father. In connexion with pathology and bacteriology, he mentioned the work of Wright, Harrison, Harvey, Cummins, and others. Lewis, Bruce, and Simpson, among many others, had contributed greatly to our knowledge of tropical diseases. In medicine and surgery the names were too numerous to mention. Every branch of the two subjects could be and was being studied.

Sir William Leishman concluded by speaking of the new and flourishing army dental department and of the ambitious task it had undertaken of examining every tooth in the army. It would, he said, be interesting to see what effect this had on the incidence of those diseases in which caries and pyorrhœa alveolaris are supposed to be important ætiological factors.

STIMULANTS OF GROWTH.

AT the first social evening of the session, on Oct. 30th, Prof. Gowland Hopkins, F.R.S., Cambridge, delivered an address on this subject to the Royal Society of Medicine. Of all the attributes of life in whatever form, growth, he said, was the most characteristic, but the question of growth had so many aspects that he was compelled to confine his remarks to only one of these—namely, is growth a process that goes on spontaneously, or does it need a stimulus, just as a muscle or nerve cell needs a stimulus to make it perform its function? The whole animal body was under the influence of stimuli, and growth of the body was controlled by the action of the internal secretions. He showed some interesting lantern slides to illustrate the rôle played by the pituitary body in controlling development. But the conditions governing growth of the body were too complex to illustrate the phenomena he wished to consider, therefore it was necessary to deal with observations made on unicellular organisms. In protozoa the function of growth dominated all other functions, yet the distinction between the growth of these organisms and that of complex animal tissues was mainly superficial—one characteristic of both was that when the individual cell reached a certain size it divided. What was the nature of the substances which caused the cell to grow and divide? It was found that artificial parthogenesis always required a stimulus of some sort. What was this stimulus? Was it something which wakened the dormant activity of the growth processes, having a "trigger action," or was it "building material"? The smaller the amount of the material required, the more likely was it to be a stimulant. There were other substances, too, which acted as catalysts, whose presence was necessary to the continuation of growth.

In considering the growth of bacteria, the lecturer said that the more saprophytic or parasitic the organism the more stimulus was required for multiplication, but the amount of the substance necessary to growth was so infinitesimal that, in his opinion, it could not be building material, but must be a stimulant. What was this substance? If you isolated a single protozoon and transferred it to a medium of too large a bulk it would not grow. Starting with one individual, the number of cells by fission would be inversely proportional to the amount of medium. Were two cells put into the same amount of medium, the number produced by fission would be 20 times greater than in the first case, when you started with one cell. These proved facts seemed to support the theory that the cell-nucleus, on dividing, poured a growth-catalyst into the culture-medium; the less medium, the greater the concentration of the catalyst, hence the more abundant the growth. Turning to the animal body, Prof. Hopkins pointed out that though the adult animal as a whole had ceased to grow, the cells of its tissues transferred to a suitable medium did not cease to grow, and here, he said, we were touching on the great problem of cancer. It was extremely unfair, he added, to say that nothing had been done in this country in the investigation of cancer. The effect of vitamins on growth was that of a stimulus, for experiments showed that the addition of the minutest quantity (1 mg. or less per day) to the food of vitamin-deprived rats produced a remarkable and immediate growth. Finally, he pointed out, although the pituitary gland was a tissue highly specialised for the general control of growth, any living cell of itself could supply stimulants for growth. When cells were living in community, one cell could stimulate the other to some extent.

In moving a vote of thanks, Prof. E. H. Starling paid a tribute to Prof. Hopkins's power of finding among the thickets of ignorance which surround us some path to knowledge which others had passed by unheedingly, and instanced his recognition of vitamins in growth as a case in point. He expressed his gratitude to the lecturer, not so much for what he had given, but for the keen sense he aroused of something that was about to come. Previously to the address, Sir William Hale-White, the President, presented the Society's gold medal to Prof. Hopkins.

A WORCESTERSHIRE HOME FOR MENTAL DEFECTIVES.

THE sixth annual report of the Besford Court Catholic Mental Welfare Hospital for Children discusses the general problem of the treatment of the mentally defective child and shows a full appreciation of the requirements for its solution. Conventional training in the "three R's" is regarded as unimportant, except for reading, the main objects being to educate such powers as the child possesses and to eliminate that emotional instability which makes the high-grade moron an expense to the community when he reaches adult life. The economy axe has made a dead letter of the 1914 Act, which should compel local authorities to provide suitable education for defective children, and the report points out the futility of training these children in ordinary schools. The Besford Hospital is certified by the Board of Education, the Board of Control, and the Home Office, and receives grants from various authorities, a fourth part of the expenses being derived from special appeals. There is no accommodation for girls, and it is not found possible to accept the lower grades of mental defectives: only those are admitted who can reasonably be expected to be made at least partly self-supporting in adult life. With these unavoidable limitations the institution carries out a work of public benefit, and the modern and enlightened methods indicated in the report should add to our knowledge of how to handle these difficult cases.

A DIRECTORY OF PRACTISING MIDWIVES AND MATERNITY NURSES.

A CLASSIFIED directory has been issued by the Scientific Press, Ltd., for the convenience of the medical profession and the public. It is divided into the following sections: (1) Certified midwives practising alone; (2) certified midwives practising with doctors; (3) maternity nurses. In regard to sections (1) and (3), it is emphasised that under the Midwives Act it is a punishable offence for any woman not certified under the Act to attend another woman in labour "habitually and for gain" except under the direction of a registered medical practitioner. Each section is arranged under the headings London and County Suburbs, Provincial, Wales, Scotland, Ireland, and Channel Islands, and the names are given in alphabetical order with addresses.

EXEMPTIONS TO SOUTH AFRICAN TAX ON PATENT MEDICINES.

A NOTICE in the South African Union *Gazette* of Oct. 5th states that for the purposes of the Customs and Excise Duties Amendment Act of 1923 the term "patent or proprietary medicines" shall not be deemed to include "the undermentioned household remedies, whether sold under a particular trade mark or labelled with a recommendation or not," namely "arnica, camphorated oil, carbolic oil, carbolic ointment, castor oil, cod-liver oil, dill water, embrocation, Epsom salts, eucalyptus oil, glycerine, Gregory's powder, gripe water, Hoffman's anodyne, ipecacuanha wine, liquorice powder, malt extract, malt extract and cod-liver oil, medicinal paraffin, quinine—ammoniated tincture of, soothing powders, teething powders, zinc ointment."

A BOOK OF REFERENCE.

The Annual Charities Register and Digest. 1922 (London: Longmans, Green & Co., pp. 554, 7*s.* 6*d.*).—This year-book, now in its thirty-second edition, is so well known that mention of its contents is becoming superfluous. The volume opens with the customary review of the finances of the charitable institutions of London and its neighbourhood, and contains the usual detailed and up-to-date sections devoted to relief in affliction, sickness, and distress and to reformatory relief, obtainable in or about the capital. The miscellaneous section includes information on social and physical improvement, employment, emigration, and protection of human and animal life and of the helpless, and appended chapters deal with benevolent institutions, trade and friendly societies, registry offices, savings banks, and employment exchanges.

"THE WORLD'S CHILDREN."

AN interesting feature of the first number of the fourth volume of this quarterly publication (published at 30, Mortimer-street, London, W. 1, 1*s.*) is a symposium by educationists on "Next Steps in Education," which gives a number of representative views as to the paths into which educational progress should be directed at the present time. The activities of the Save the Children Fund are set out in detail. There is a delightful article by Sir Robert Baden-Powell on Climbing as Education—he suggests an obstacle track of indoor and outdoor furniture such as chairs, boxes, wheel-barrows, garden seats for children of three, leading on to tree, rock, and mountain climbing for older children. The educational value of a child's natural instinct for climbing is enormous, for besides developing muscle climbing stimulates the association areas of the brain and teaches self-control and nice calculation. Major Leonard Darwin's article on a Child's Rights is more controversial. While not disputing the right of a child to a good home, he argues that the alternatives of complete removal from an unusually bad home and of supplementing home supplies generally results in an increased output from the bad or indifferent home with more suffering for future generations.